FCC/IC RF Test Report

APPLICANT	:	**PSION INC.**
EQUIPMENT	:	**EP10 Hand-Held Computer**
BRAND NAME	:	psion
MODEL NAME	:	**7515U**
FCC ID	:	**GM37515UA**
IC	:	**2739D-7515UA**
STANDARD	:	**FCC Part 15 Subpart C §15.247** **IC RSS-210 Issue 8**
CLASSIFICATION	:	**Digital Transmission System (DTS)**

The product was received on Apr. 09, 2011 and completely tested on Jun. 08, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **5**

1.1 Applicant 5
1.2 Manufacturer 5
1.3 Feature of Equipment Under Test 6
1.4 Testing Site 7
1.5 Applied Standards 8
1.6 Ancillary Equipment List 8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1 RF Power 9
2.2 Test Mode 11
2.3 Connection Diagram of Test System 12
2.4 RF Utility 13

3 TEST RESULT **14**

3.1 6dB and 99% Bandwidth Measurement 14
3.2 Output Power Measurement 35
3.3 Band Edges Measurement 38
3.4 Spurious Emission Measurement 48
3.5 Power Spectral Density Measurement 64
3.6 AC Conducted Emission Measurement 75
3.7 Radiated Emission Measurement 79
3.8 Antenna Requirements 112

4 LIST OF MEASURING EQUIPMENT **113**

5 UNCERTAINTY OF EVALUATION **114**

APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR140905B	Rev. 01	Initial issue of report	Jul. 08, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 7.5 dB at 0.574 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.03 dB at 2488.22 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

PSION INC.
2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.2 Manufacturer

PSION INC.
2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	EP10 Hand-Held Computer
Brand Name	psion
Model Name	7515U
FCC ID	GM37515UA
IC	2739D-7515UA
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	**<2400 MHz ~ 2483.5 MHz>** 802.11b : 20.23 dBm (0.105 W) 802.11g : 23.58 dBm (0.228 W) 802.11n (BW 20MHz) : 22.41 dBm (0.174 W) **<5725 MHz ~ 5850 MHz>** 802.11a : 20.81 dBm (0.12 W) 802.11n (BW 20MHz) : 21.24 dBm (0.13 W)
Antenna Type	802.11b/g/n : PIFA Antenna with gain 3.73 dBi 802.11a/n : PIFA Antenna with gain 4.87 dBi
HW Version	2
SW Version	1.1
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Type of Emission	19M3D1D 18M2D1D
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

List of Accessory:

Specification of Accessory		
AC Adapter 1	**Brand Name**	Leader
	Model Name	IU18-2050300-WP
AC Adapter 2	**Brand Name**	Phihong
	Model Name	PSA15R-050P
Battery	**Brand Name**	PSION / ETI
	Model Name	RV3010 / BP08-000760
Car Charger	**Brand Name**	AOEM
	Model Name	C15C-0520CD0-C0
Desktop Charger Cradle (Single Dock)	**Brand Name**	PSION
	Model Name	RV4000
Desktop Charger Cradle (AC Adapter)	**Brand Name**	FSP
	Model Name	FSP050-DBAB1
Charger Snap Module 1	**Brand Name**	PSION
	Model Name	RV4001
Charger Snap Module 2	**Brand Name**	PSION
	Model Name	RV4002
LCD Panel	**Brand Name**	Sharp
	Model Name	LS037V7DW01
Pouch	**Brand Name**	Psion
	Model Name	RV6091

Remark: For accessories equipped with this EUT, please refer to Appendix A.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	**Sporton Site No.**		**FCC/IC Registration No.**
	CO05-HY	03CH07HY	722060/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT32	100522	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	**20.23**	20.11	20.17	20.2
CH 06	2437 MHz	20.09	20.1	20.17	19.96
CH 11	2462 MHz	19.67	19.78	19.84	19.86

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	22.57	22.3	22.44	22.46	23.3	22.77	22.68	22.77
CH 06	2437 MHz	22.36	22.1	22.26	22.33	22.99	22.62	22.74	22.73
CH 11	2462 MHz	21.69	22.16	22.47	22.16	**23.58**	22.71	22.85	22.69

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	21.33	21.32	21.3	21.82	21.64	22.33	21.53	22.15
CH 06	2437 MHz	21.81	21.01	21.37	21.9	21.78	21.5	21.7	22
CH 11	2462 MHz	21.43	21.76	22.03	22.09	21.86	21.97	21.65	**22.41**

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	**20.81**	20.64	20.66	20.73	20.77	20.57	20.77	20.71
CH157	5785 MHz	19.52	19.58	19.47	19.59	19.5	19.64	19.63	19.62
CH165	5825 MHz	18.83	18.79	18.82	18.85	18.8	18.77	18.86	18.75

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	**21.24**	20.89	21.02	20.96	21	21.11	21	20.82
CH157	5785 MHz	19.61	19.65	19.66	19.64	19.62	19.6	19.54	19.57
CH165	5825 MHz	18.91	18.8	18.82	18.83	18.87	18.92	18.83	18.86

Remark:

1. The EUT is programmed to transmit signals continuously for all testing.
2. The data rates of WLAN 802.11a/b/g/n were set in 1Mbps for 802.11b, 24Mbps for 802.11g, MCS7 for 802.11n (BW 20MHz), 6Mbps for 802.11a, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.

2.2 Test Mode

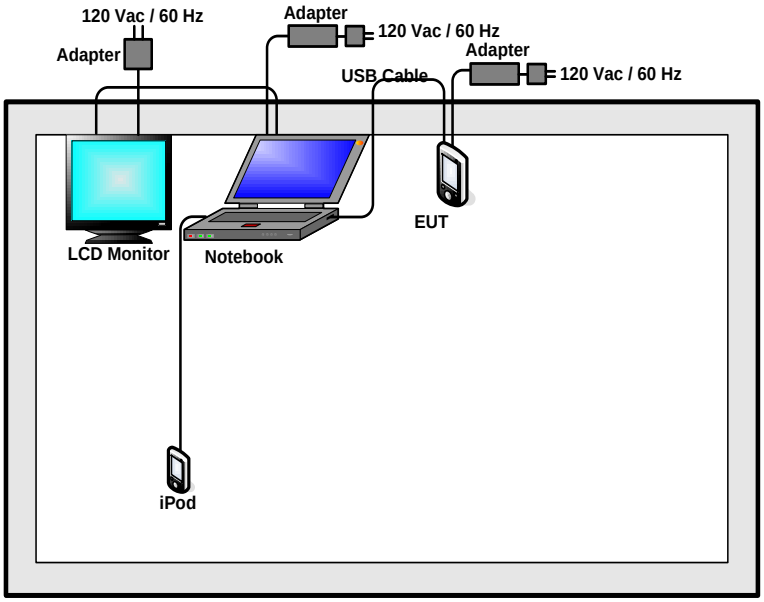
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

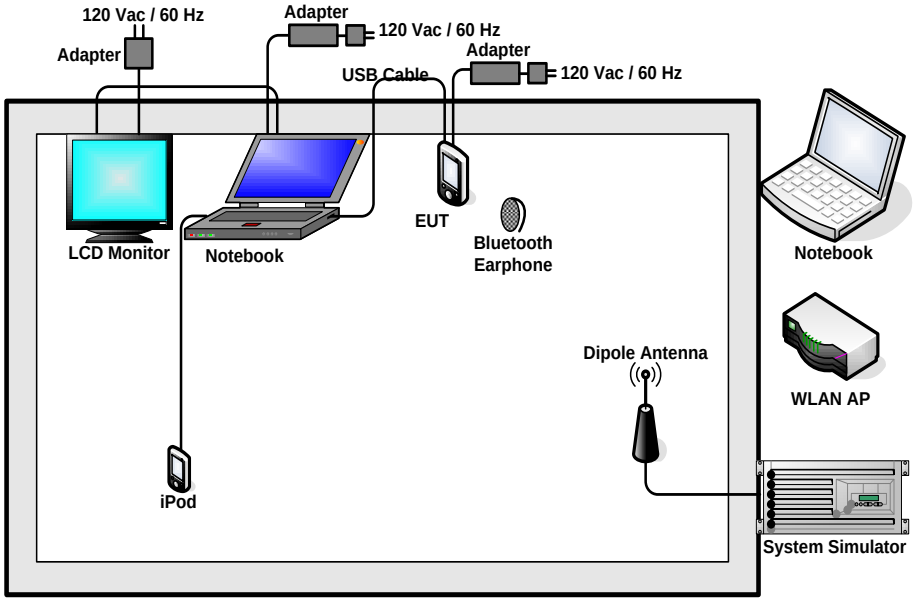
Test Cases		
Test Item	**802.11b (Modulation : DSSS)** **802.11g/n (Modulation : OFDM)**	**802.11a/n (Modulation : OFDM)**
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz + TC Mode 2: 802.11b_CH06_2437 MHz + TC Mode 3: 802.11b_CH11_2462 MHz + TC Mode 4: 802.11g_CH01_2412 MHz + TC Mode 5: 802.11g_CH06_2437 MHz + TC Mode 6: 802.11g_CH11_2462 MHz + TC Mode 7: 802.11n_CH01_2412 MHz (BW 20M) + TC Mode 8: 802.11n_CH06_2437 MHz (BW 20M) + TC Mode 9: 802.11n_CH11_2462 MHz (BW 20M) + TC	Mode 10: 802.11a_CH149_5745 MHz + TC Mode 11: 802.11a_CH157_5785 MHz + TC Mode 12: 802.11a_CH165_5825 MHz + TC Mode 13: 802.11n_CH149_5745 MHz (BW 20M) + TC Mode 14: 802.11n_CH157_5785 MHz (BW 20M) + TC Mode 15: 802.11n_CH165_5825 MHz (BW 20M) + TC
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery	
Remark: TC stands for Test Configuration, and consists of battery, adapter, and USB cable.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “call23WM”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

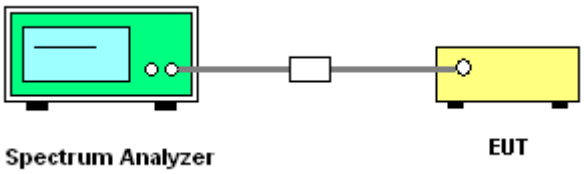
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.04 MHz	0.5	Pass
06	2437	9.04 MHz	0.5	Pass
11	2462	9.04 MHz	0.5	Pass

Test Mode :	Mode 4, 5, 6	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.40 MHz	0.5	Pass
06	2437	16.34 MHz	0.5	Pass
11	2462	16.36 MHz	0.5	Pass

Test Mode :	Mode 7, 8, 9	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.52 MHz	0.5	Pass
06	2437	17.20 MHz	0.5	Pass
11	2462	17.24 MHz	0.5	Pass

Test Mode :	Mode 10, 11, 12	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.64 MHz	0.5	Pass
157	5785	15.80 MHz	0.5	Pass
165	5825	15.44 MHz	0.5	Pass

Test Mode :	Mode 13, 14, 15	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.02 MHz	0.5	Pass
157	5785	15.68 MHz	0.5	Pass
165	5825	15.50 MHz	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.12 MHz	Pass
06	2437	14.12 MHz	Pass
11	2462	14.12 MHz	Pass

Test Mode :	Mode 4, 5, 6	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.44 MHz	Pass
06	2437	18.44 MHz	Pass
11	2462	18.36 MHz	Pass

Test Mode :	Mode 7, 8, 9	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.28 MHz	Pass
06	2437	19.24 MHz	Pass
11	2462	19.20 MHz	Pass

.

Test Mode :	Mode 10, 11, 12	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

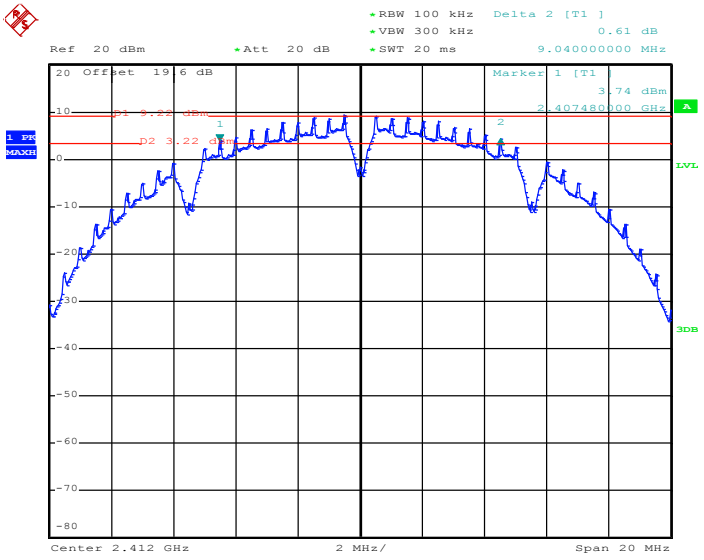
Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	17.00 MHz	Pass
157	5785	17.08 MHz	Pass
165	5825	17.20 MHz	Pass

Test Mode :	Mode 13, 14, 15	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	18.04 MHz	Pass
157	5785	18.16 MHz	Pass
165	5825	18.24 MHz	Pass

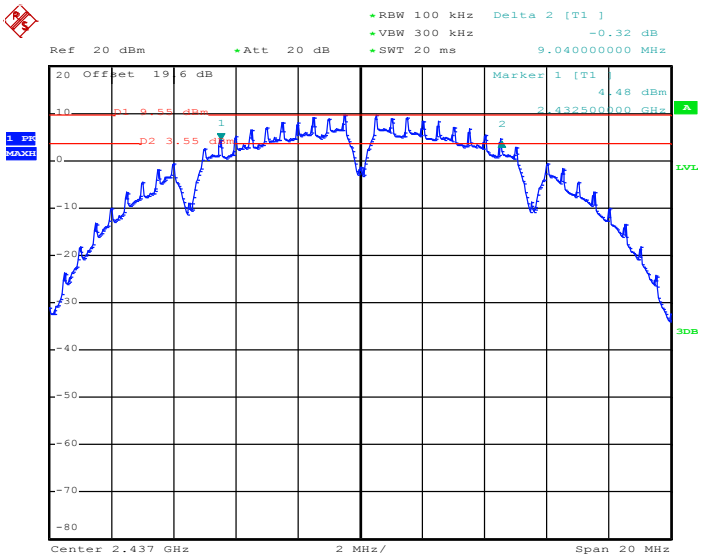
3.1.7 Test Result of 6dB Bandwidth Plots

Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



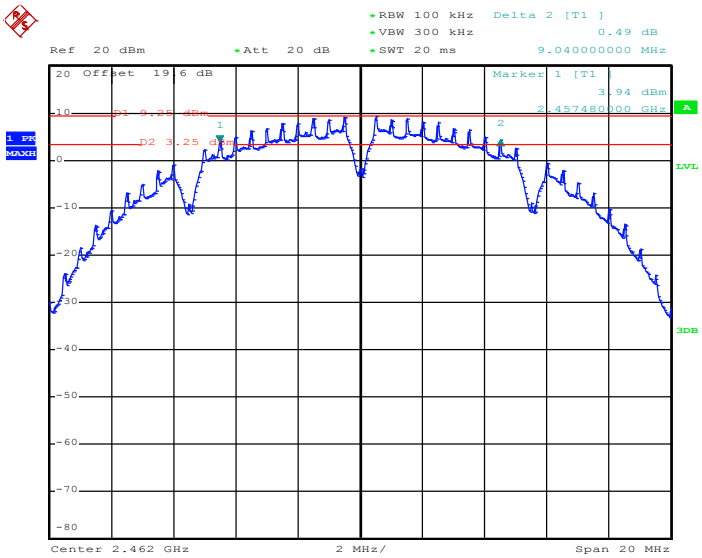
Date: 10.MAR.2011 10:11:17

Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



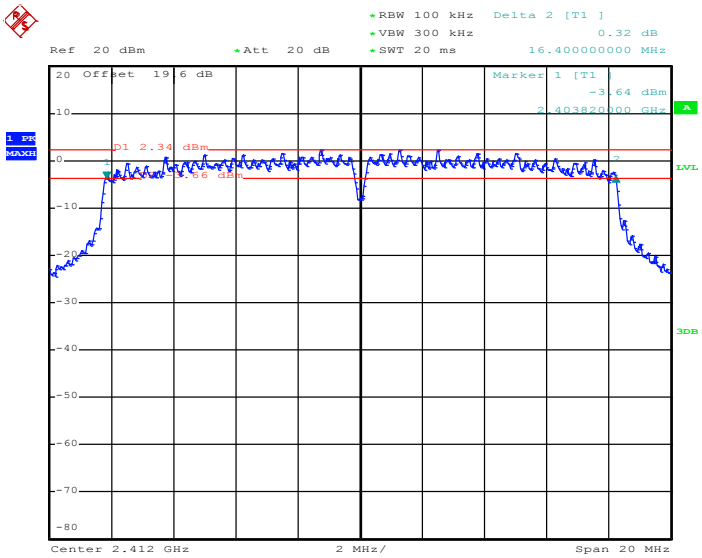
Date: 10.MAR.2011 11:47:37

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



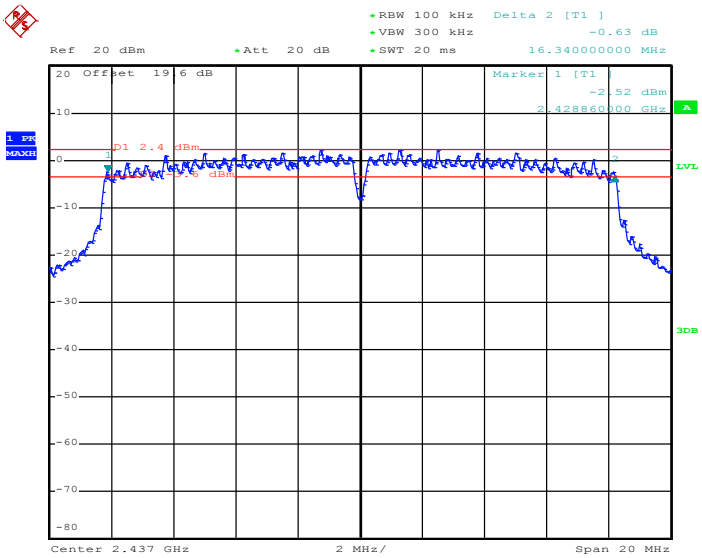
Date: 10.MAR.2011 11:51:07

Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



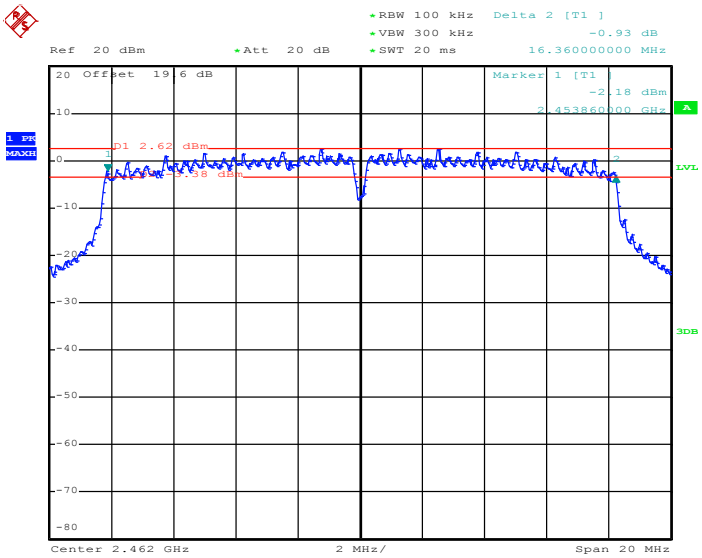
Date: 10.MAR.2011 11:27:31

Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



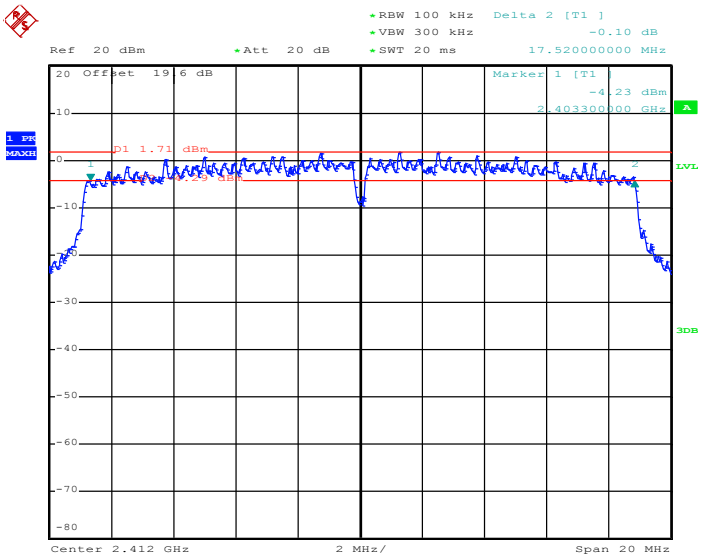
Date: 10.MAR.2011 11:14:43

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



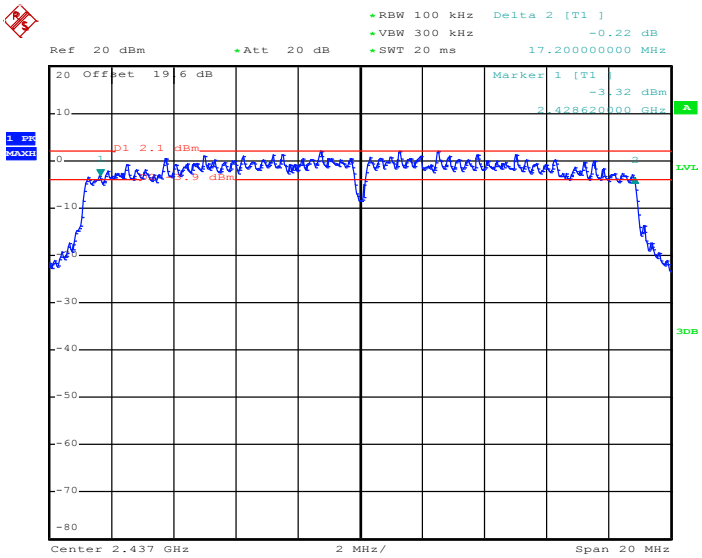
Date: 10.MAR.2011 10:58:40

Mode 7 : 6 dB Bandwidth Plot on 802.11n Channel 01



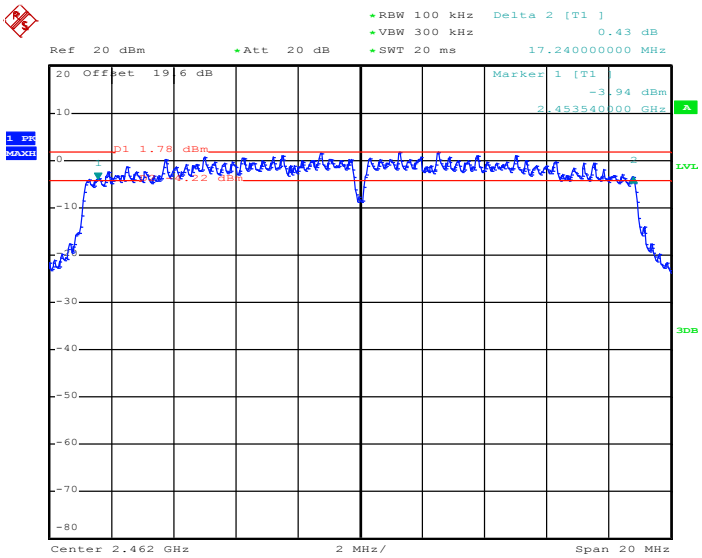
Date: 10.MAR.2011 13:29:02

Mode 8 : 6 dB Bandwidth Plot on 802.11n Channel 06



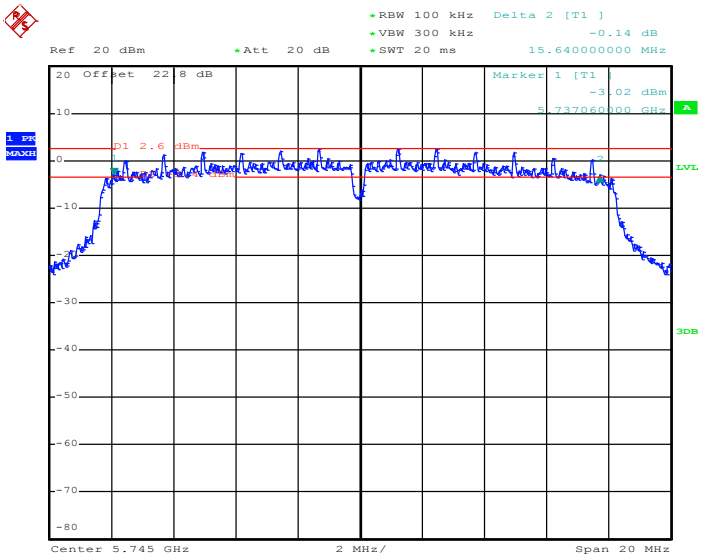
Date: 10.MAR.2011 12:39:32

Mode 9 : 6 dB Bandwidth Plot on 802.11n Channel 11



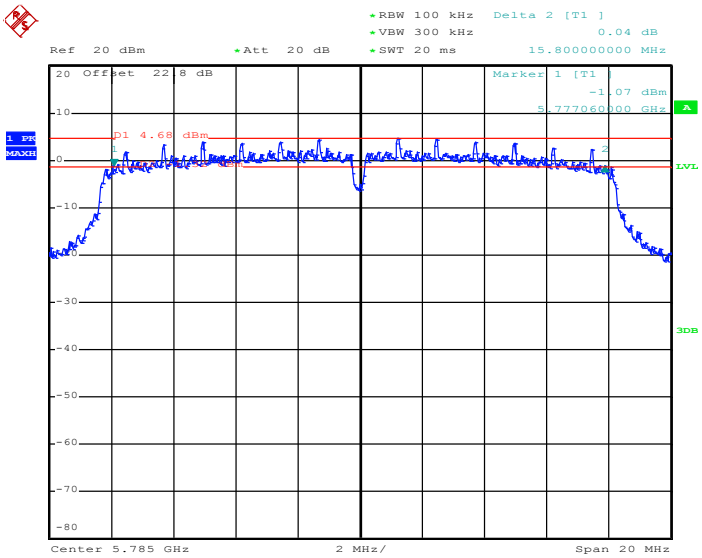
Date: 10.MAR.2011 12:51:26

Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149



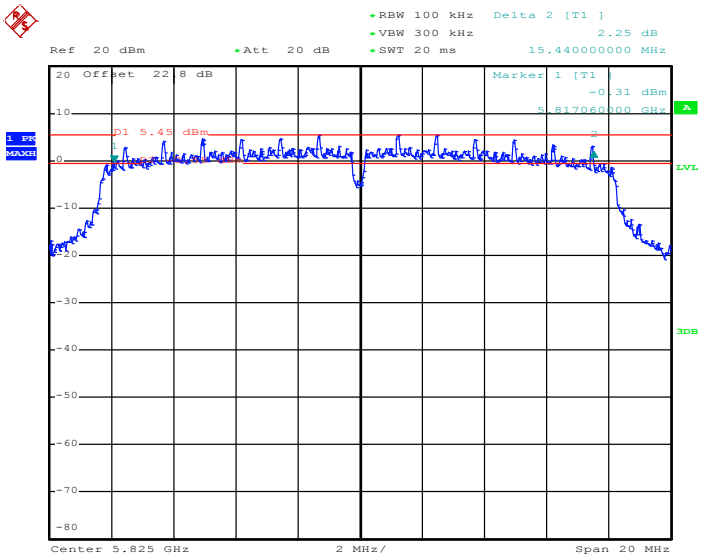
Date: 23.MAR.2011 08:25:44

Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157



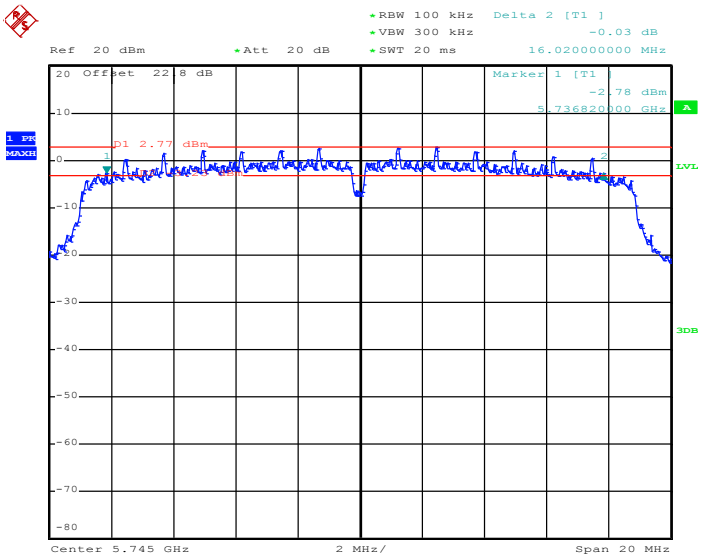
Date: 23.MAR.2011 08:39:49

Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165



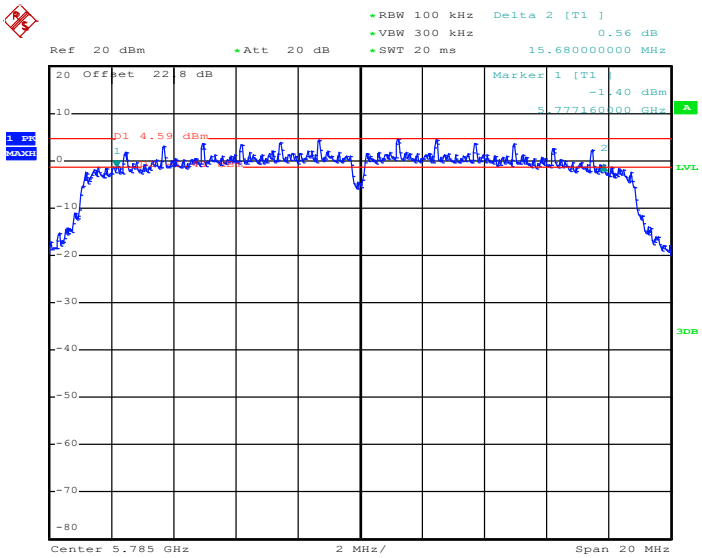
Date: 23.MAR.2011 08:42:13

Mode 13: 6 dB Bandwidth Plot on 802.11n Channel 149



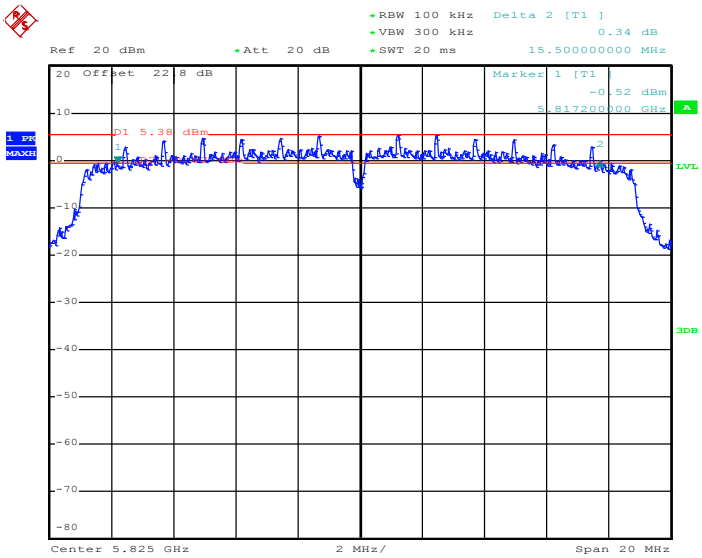
Date: 23.MAR.2011 09:26:53

Mode 14: 6 dB Bandwidth Plot on 802.11n Channel 157



Date: 23.MAR.2011 09:12:46

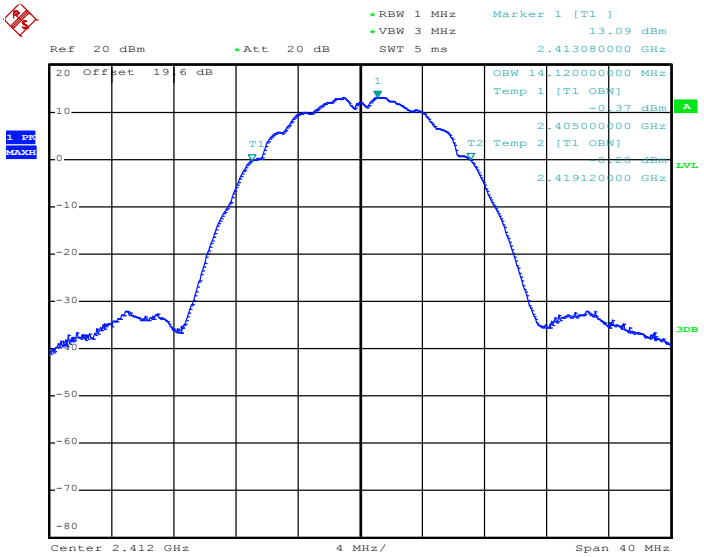
Mode 15: 6 dB Bandwidth Plot on 802.11n Channel 165



Date: 23.MAR.2011 08:56:37

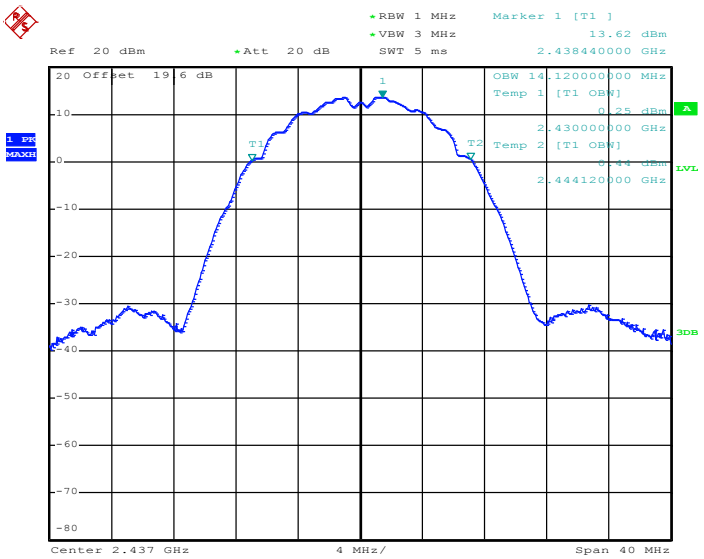
3.1.8 Test Result of 99% Bandwidth Plots

Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



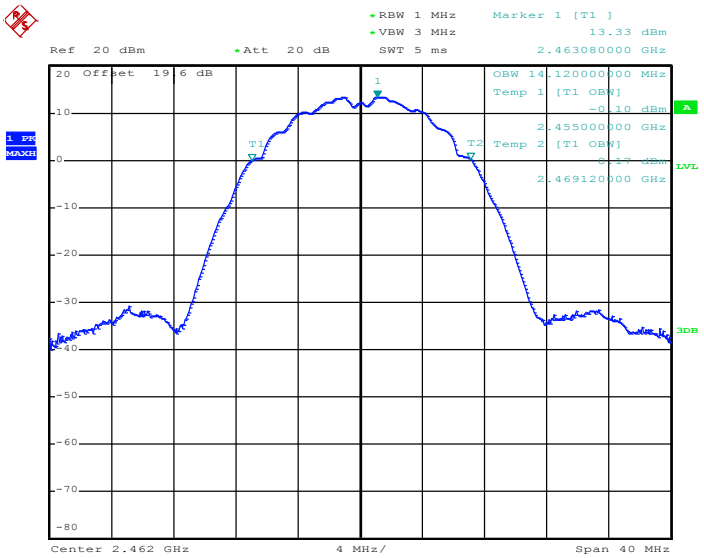
Date: 10.MAR.2011 10:12:51

Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



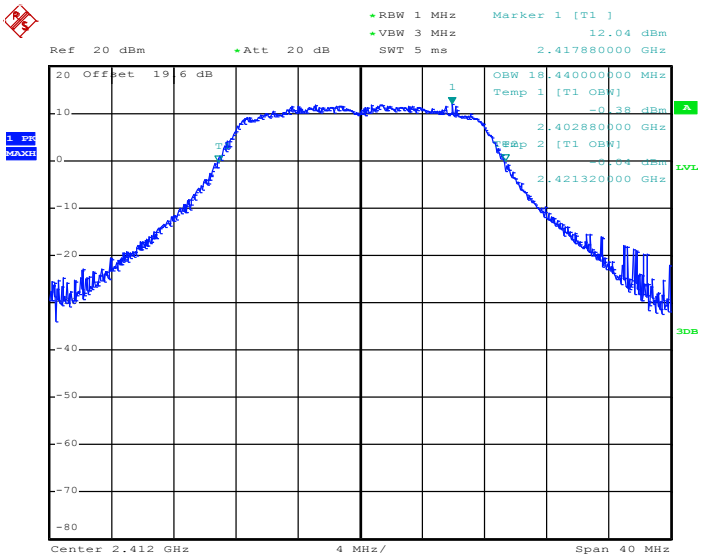
Date: 10.MAR.2011 11:48:07

Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



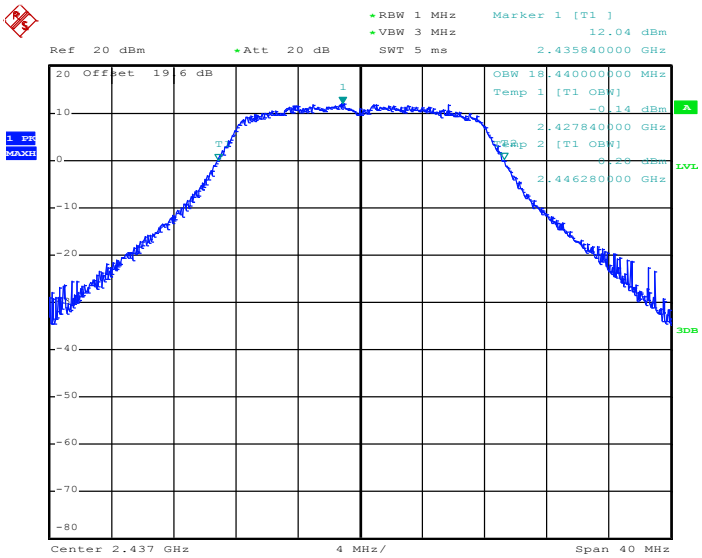
Date: 10.MAR.2011 11:52:18

Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



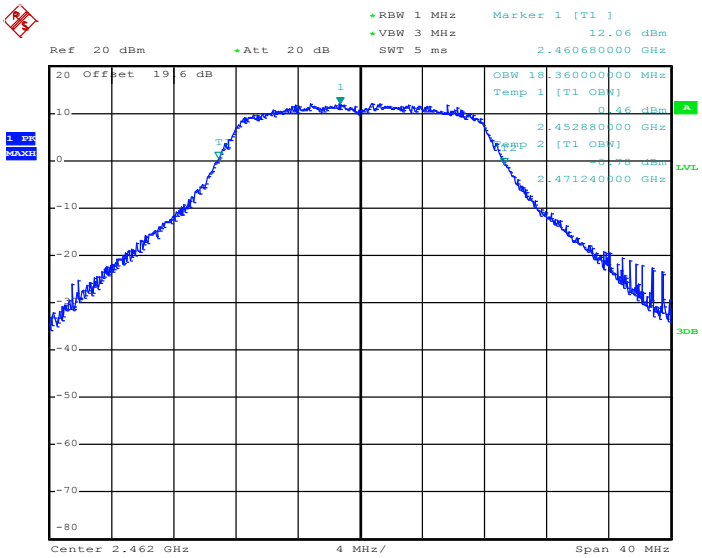
Date: 10.MAR.2011 11:29:05

Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



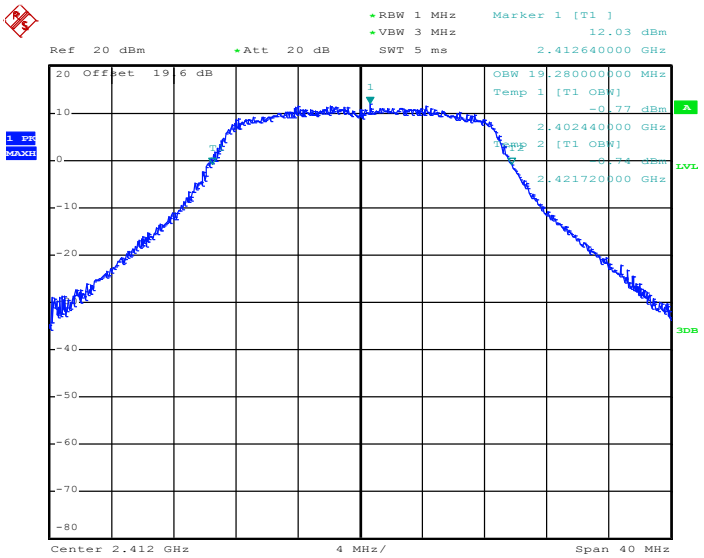
Date: 10.MAR.2011 11:15:13

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



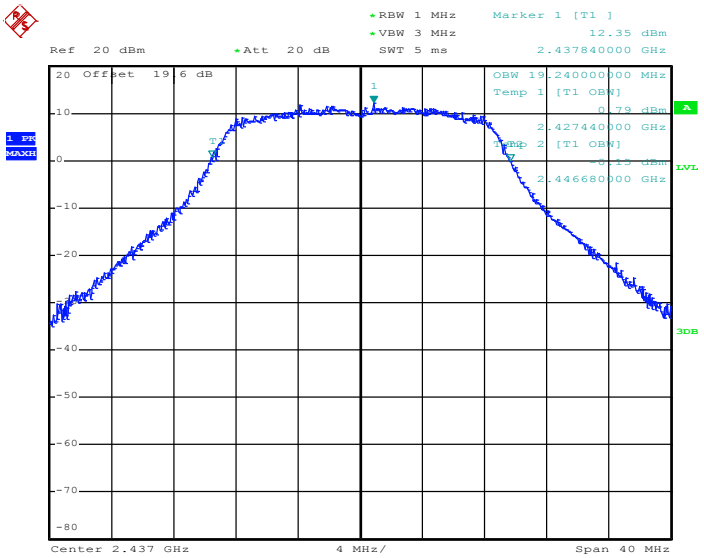
Date: 10.MAR.2011 10:59:52

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n Channel 01



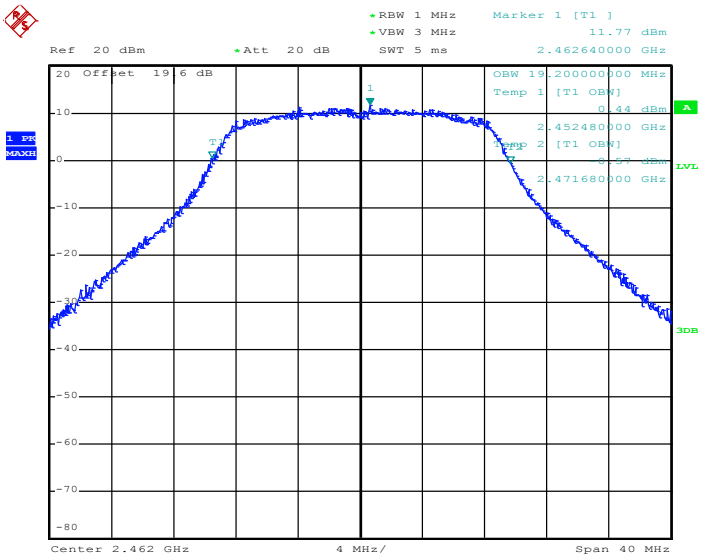
Date: 10.MAR.2011 12:26:42

Mode 8 : 99% Occupied Bandwidth Plot on 802.11n Channel 06



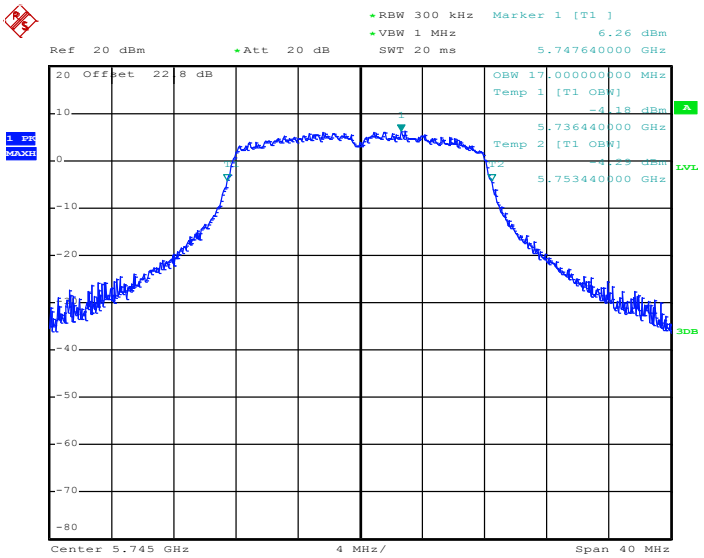
Date: 10.MAR.2011 12:40:02

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n Channel 11



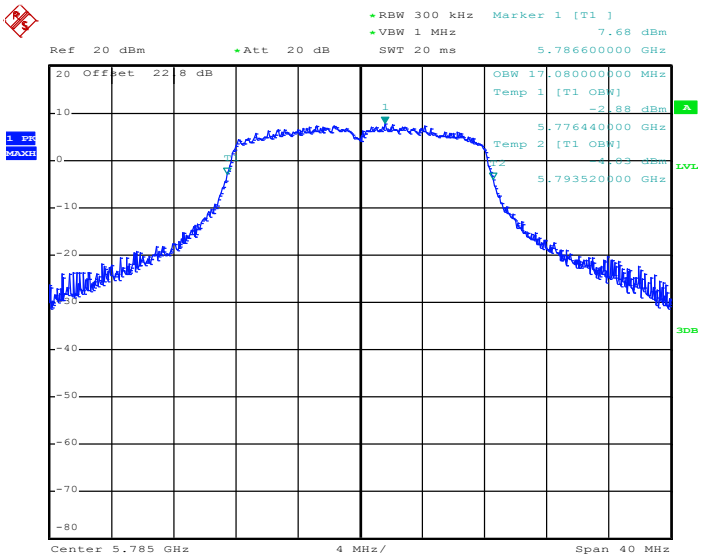
Date: 10.MAR.2011 12:52:38

Mode 10: 99% Occupied Bandwidth Plot on 802.11a Channel 149



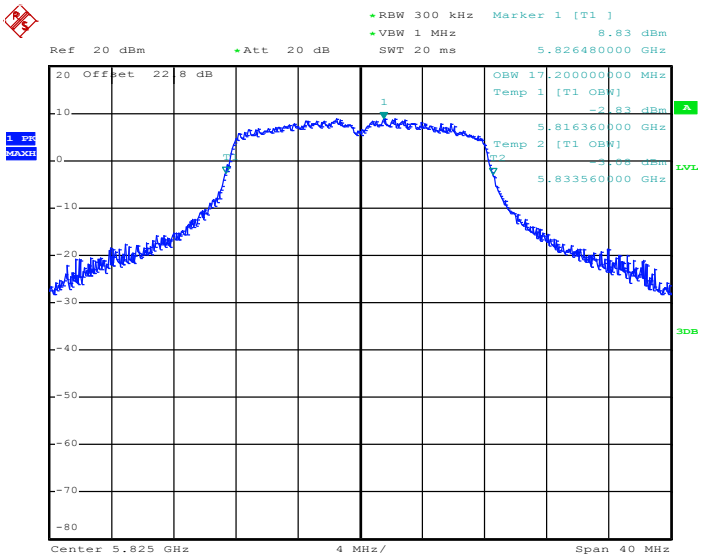
Date: 23.MAR.2011 08:14:19

Mode 11: 99% Occupied Bandwidth Plot on 802.11a Channel 157



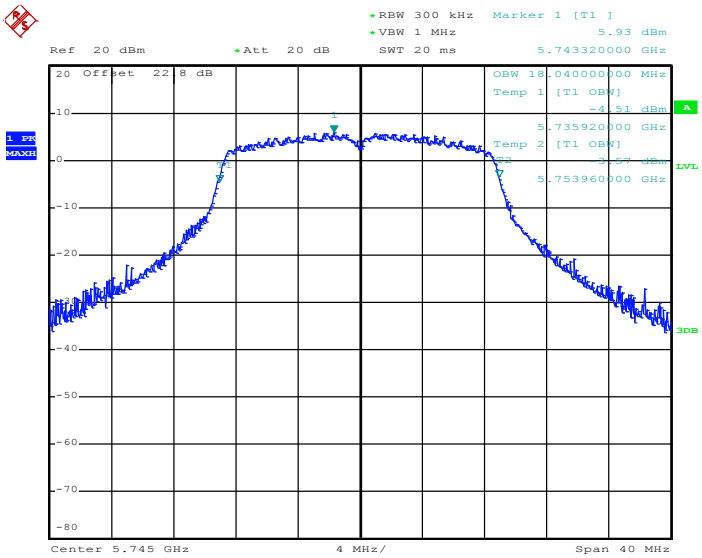
Date: 23.MAR.2011 08:29:17

Mode 12: 99% Occupied Bandwidth Plot on 802.11a Channel 165



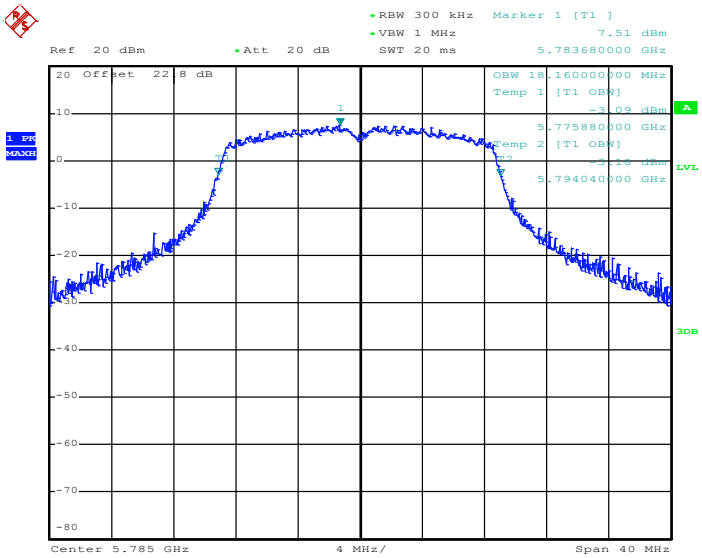
Date: 23.MAR.2011 08:43:04

Mode 13: 99% Occupied Bandwidth Plot on 802.11n Channel 149



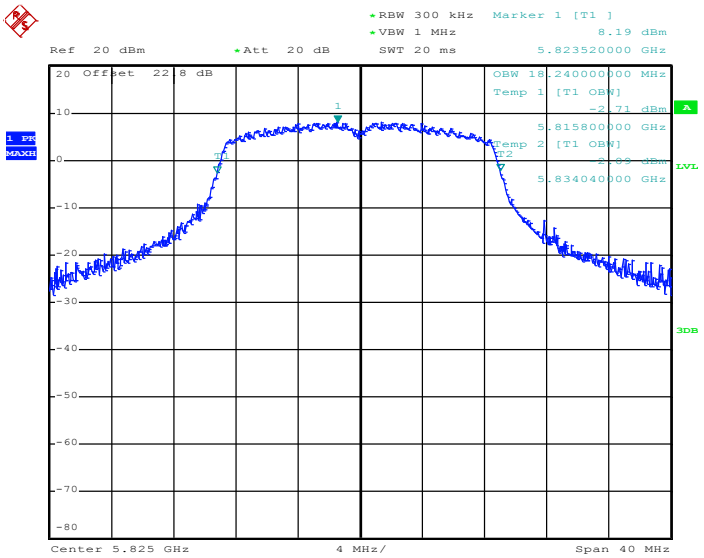
Date: 23.MAR.2011 09:27:45

Mode 14: 99% Occupied Bandwidth Plot on 802.11n Channel 157



Date: 23.MAR.2011 09:13:15

Mode 15: 99% Occupied Bandwidth Plot on 802.11n Channel 165



Date: 23.MAR.2011 08:57:29

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

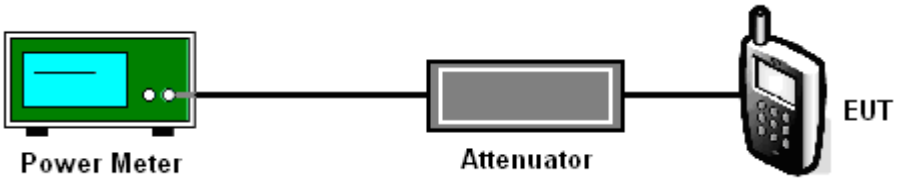
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.23	30	Pass
06	2437	20.09	30	Pass
11	2462	19.67	30	Pass

Test Mode :	Mode 4, 5, 6	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.30	30	Pass
06	2437	22.99	30	Pass
11	2462	23.58	30	Pass

Test Mode :	Mode 7, 8, 9	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.15	30	Pass
06	2437	22.00	30	Pass
11	2462	22.41	30	Pass

Test Mode :	Mode 10, 11, 12	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	20.81	30	Pass
157	5785	19.52	30	Pass
165	5825	18.83	30	Pass

Test Mode :	Mode 13, 14, 15	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.24	30	Pass
157	5785	19.61	30	Pass
165	5825	18.91	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.3.2 Measuring Instruments

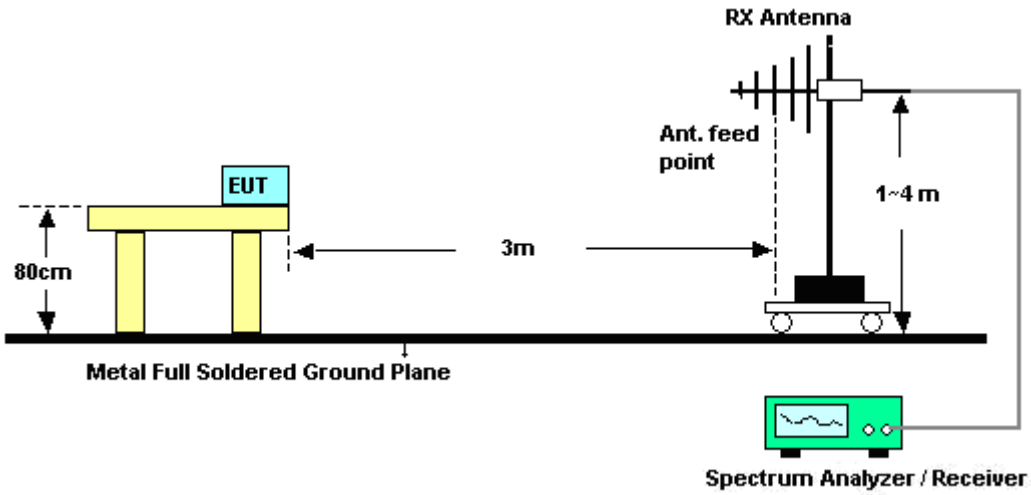
See list of measuring instruments of this test report.

3.3.3 Test Procedures

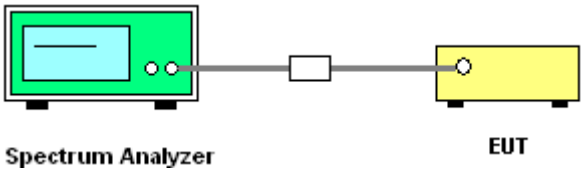
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	**Temperature :**	24~25°C
Test Band :	802.11b	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Ivan Chiang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2384.1	55.8	-18.2	74	51.46	32.16	6.03	33.85	188	40	Peak
2384.1	46.24	-7.76	54	41.9	32.16	6.03	33.85	188	40	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2384.1	54.27	-19.73	74	49.93	32.16	6.03	33.85	100	326	Peak
2384.1	44.53	-9.47	54	40.19	32.16	6.03	33.85	100	326	Average

Test Mode :	Mode 3	**Temperature :**	24~25°C
Test Band :	802.11b	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Ivan Chiang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.22	57.71	-16.29	74	53.13	32.3	6.18	33.9	187	348	Peak
2488.22	47.97	-6.03	54	43.39	32.3	6.18	33.9	187	348	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.41	54.77	-19.23	74	50.19	32.3	6.18	33.9	100	317	Peak
2488.41	44.98	-9.02	54	40.4	32.3	6.18	33.9	100	317	Average

Test Mode :	Mode 4	**Temperature :**	24~25°C
Test Band :	802.11g	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Ivan Chiang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	63.45	-10.55	74	59.09	32.18	6.03	33.85	118	42	Peak
2389.99	42.8	-11.2	54	38.44	32.18	6.03	33.85	118	42	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	62.49	-11.51	74	58.13	32.18	6.03	33.85	100	326	Peak
2389.42	43.1	-10.9	54	38.74	32.18	6.03	33.85	100	326	Average

Test Mode :	Mode 6	**Temperature :**	24~25°C
Test Band :	802.11g	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Ivan Chiang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	63.83	-10.17	74	59.27	32.28	6.18	33.9	186	347	Peak
2483.5	45.8	-8.2	54	41.24	32.28	6.18	33.9	186	347	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	62.66	-11.34	74	58.1	32.28	6.18	33.9	100	318	Peak
2483.5	44.05	-9.95	54	39.49	32.28	6.18	33.9	100	318	Average

Test Mode :	Mode 7	**Temperature :**	24~25°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	49~51%
Test Channel :	01	**Test Engineer :**	Ivan Chiang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	59.15	-14.85	74	54.79	32.18	6.03	33.85	119	41	Peak
2389.61	41.37	-12.63	54	37.01	32.18	6.03	33.85	119	41	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	64.02	-9.98	74	59.66	32.18	6.03	33.85	100	33	Peak
2389.99	44.06	-9.94	54	39.7	32.18	6.03	33.85	100	33	Average

Test Mode :	Mode 9	**Temperature :**	24~25°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	49~51%
Test Channel :	11	**Test Engineer :**	Ivan Chiang and David Yang

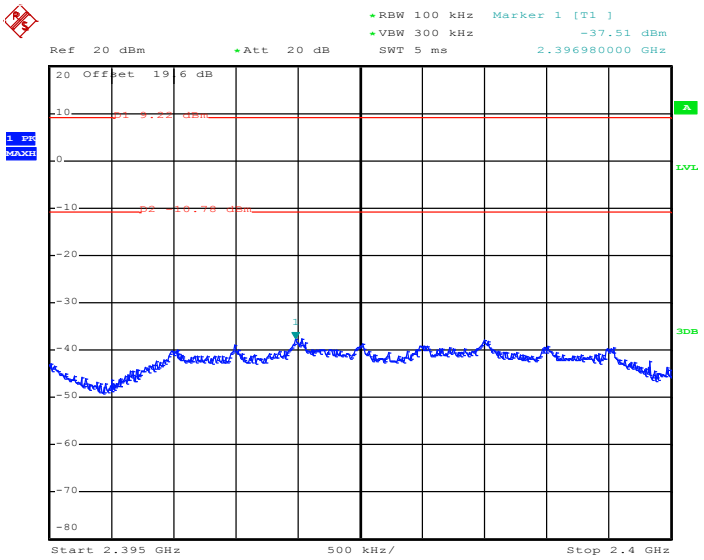
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	62.7	-11.3	74	58.14	32.28	6.18	33.9	185	345	Peak
2484.61	43.95	-10.05	54	39.39	32.28	6.18	33.9	185	345	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	61.75	-12.25	74	57.19	32.28	6.18	33.9	100	29	Peak
2483.5	42.8	-11.2	54	38.24	32.28	6.18	33.9	100	29	Average

3.3.6 Test Result of Conducted Band Edges

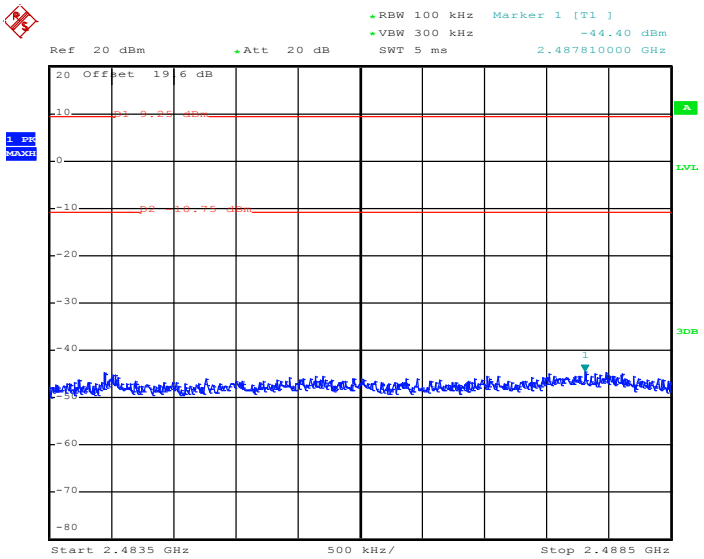
Test Mode :	Mode 1 and 3	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	48~52%
Test Channel :	01 and 11	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01



Date: 10.MAR.2011 10:12:25

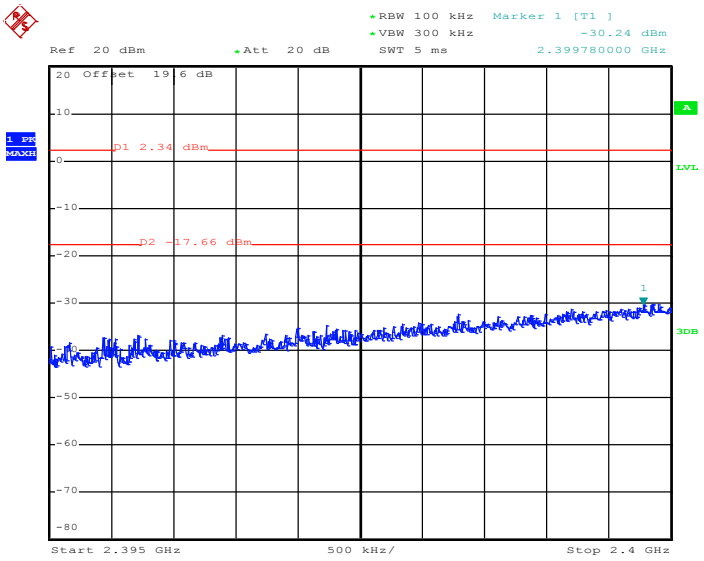
High Band Edge Plot on 802.11b Channel 11



Date: 10.MAR.2011 11:51:53

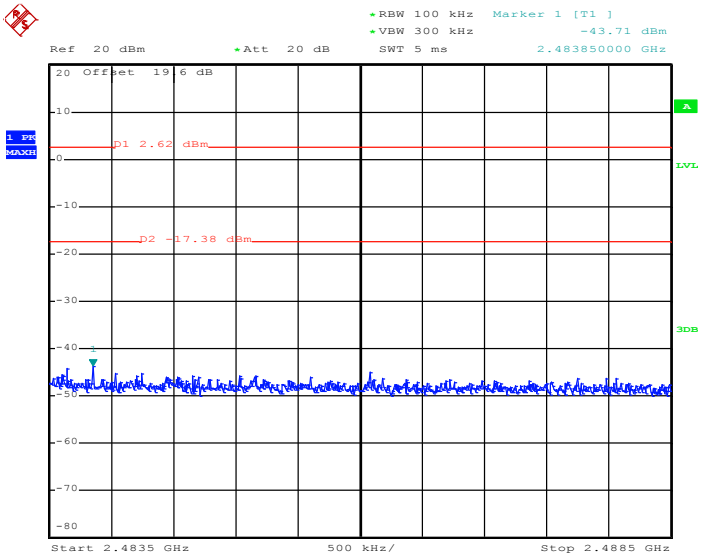
Test Mode :	Mode 4 and 6	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	48~52%
Test Channel :	01 and 11	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



Date: 10.MAR.2011 11:28:39

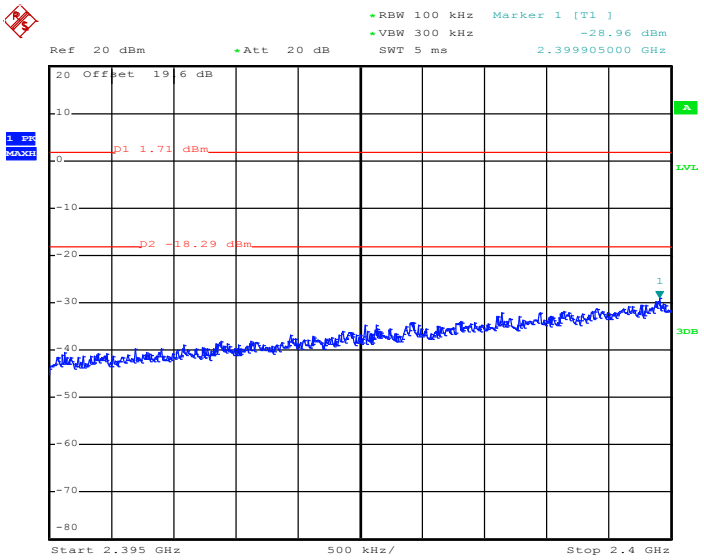
High Band Edge Plot on 802.11g Channel 11



Date: 10.MAR.2011 10:59:27

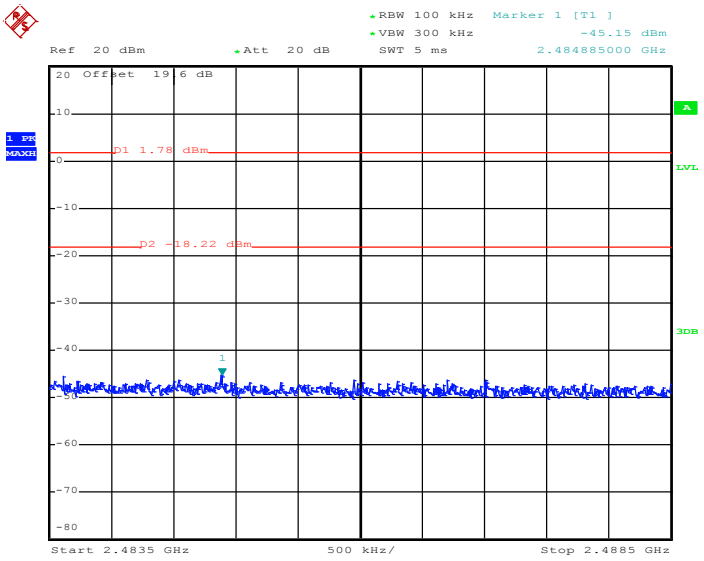
Test Mode :	Mode 7 and 9	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	01 and 11	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11n Channel 01



Date: 10.MAR.2011 13:30:10

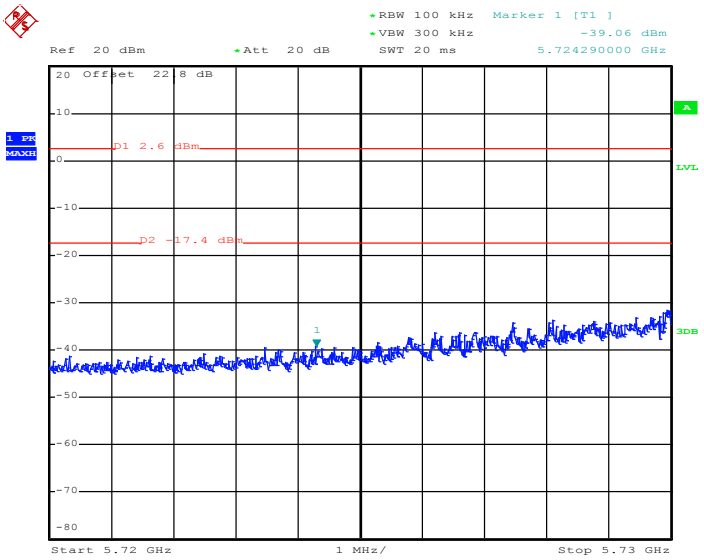
High Band Edge Plot on 802.11n Channel 11



Date: 10.MAR.2011 12:52:13

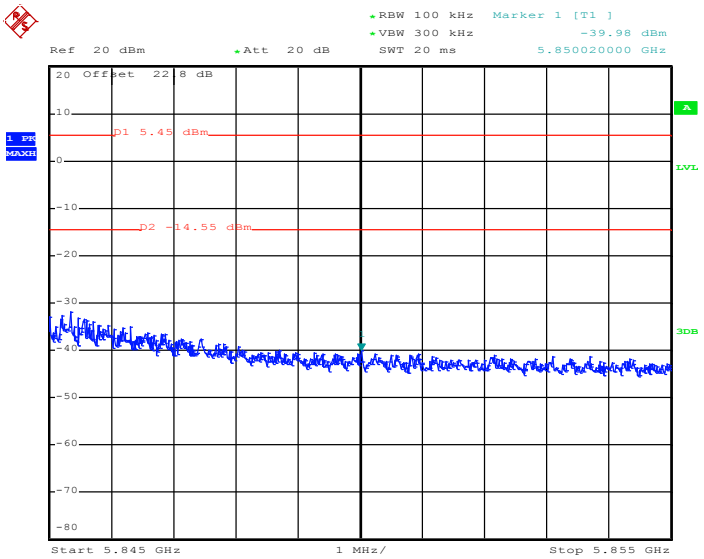
Test Mode :	Mode 10 and 12	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	48~52%
Test Channel :	149 and 165	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11a Channel 149



Date: 23.MAR.2011 08:26:10

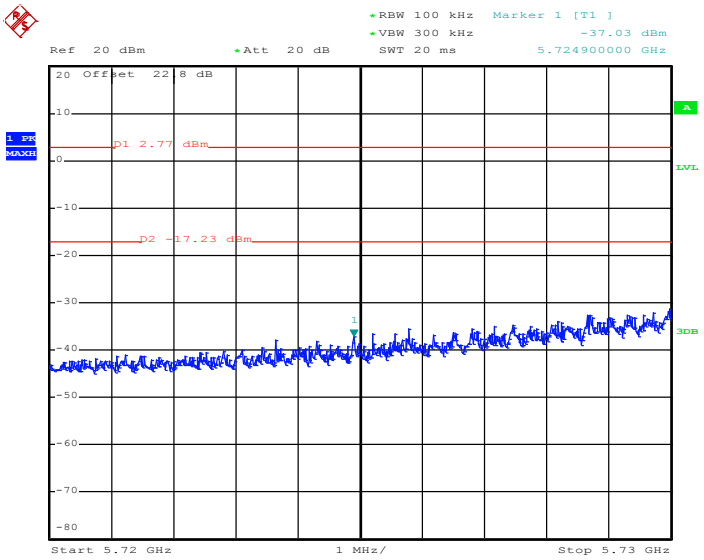
High Band Edge Plot on 802.11a Channel 165



Date: 23.MAR.2011 08:42:38

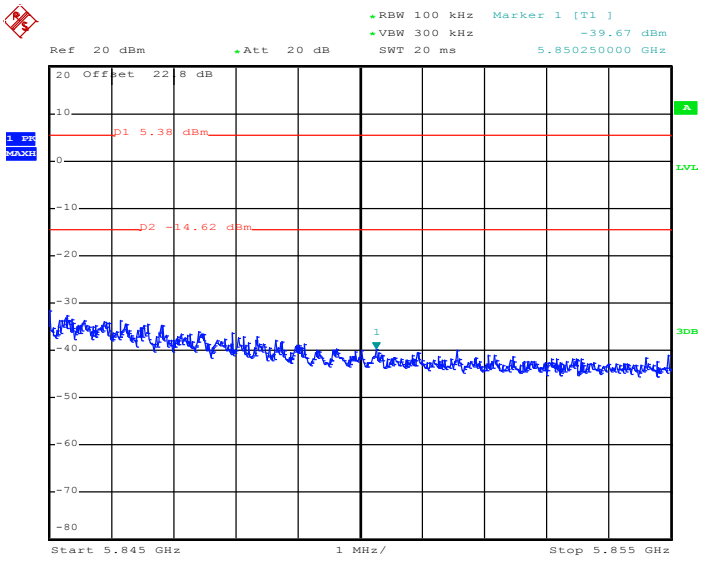
Test Mode :	Mode 13 and 15	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	149 and 165	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11n Channel 149



Date: 23.MAR.2011 09:27:19

High Band Edge Plot on 802.11n Channel 165



Date: 23.MAR.2011 08:57:03

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

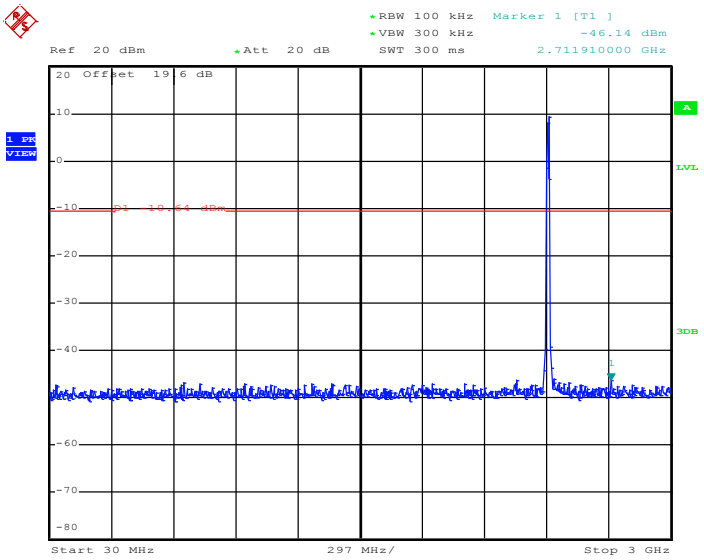
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

3.4.4 Test Setup

3.4.5 Test Result

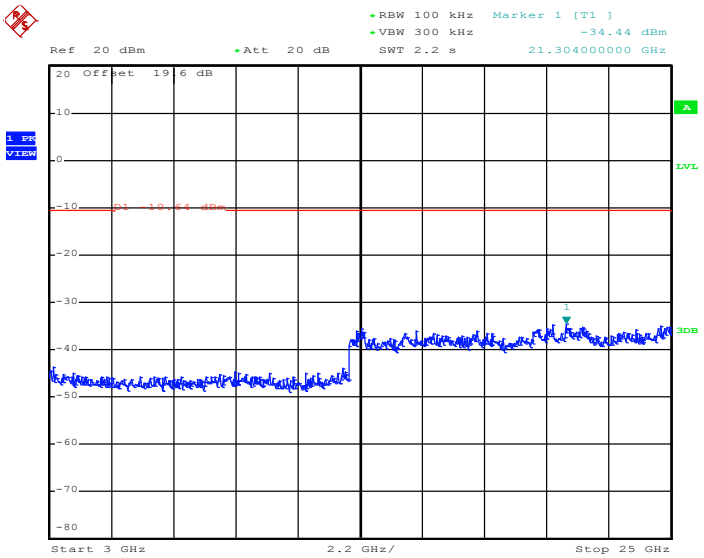
Test Mode :	Mode 1	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	48~52%
Test Channel :	01	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 10:23:14

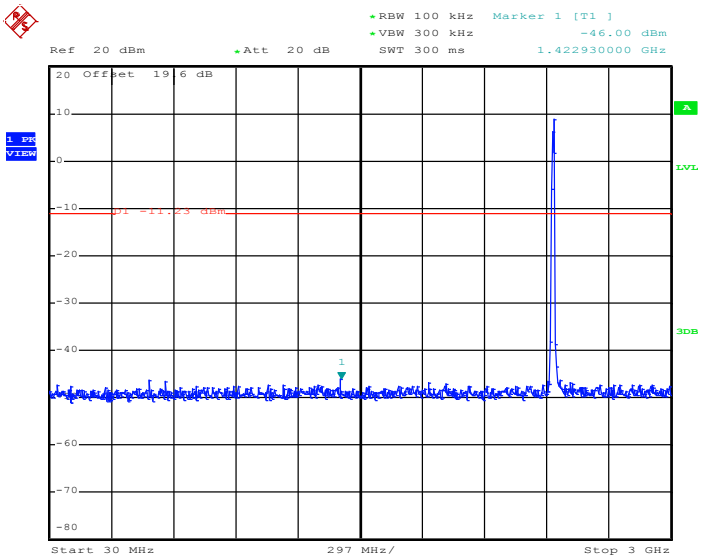
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 10:23:31

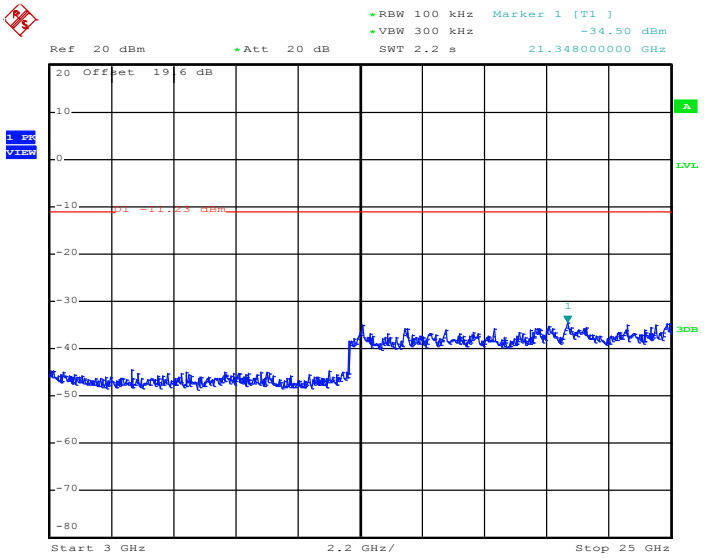
Test Mode :	Mode 2	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	48~52%
Test Channel :	06	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 11:48:28

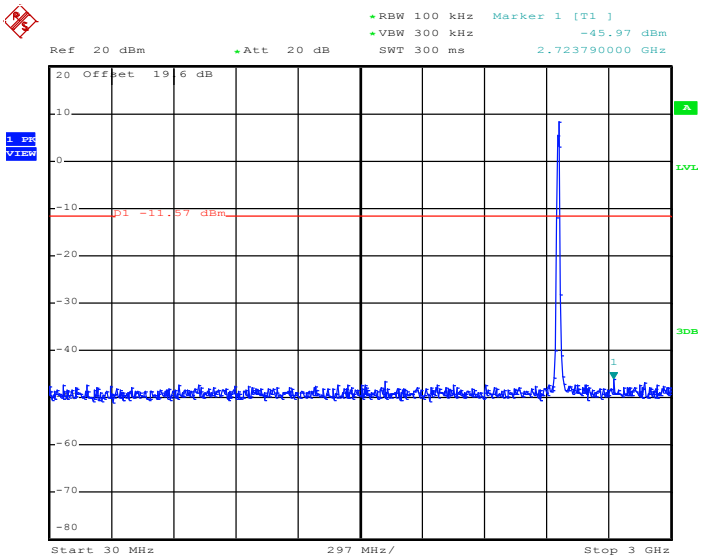
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 11:48:45

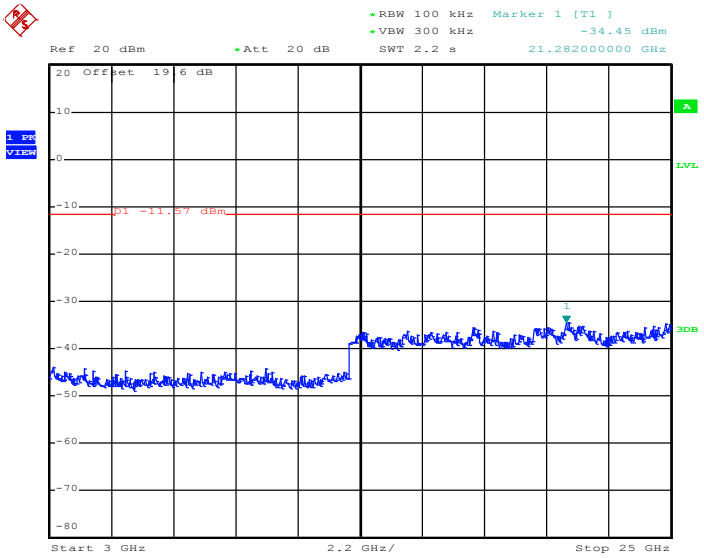
Test Mode :	Mode 3	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	48~52%
Test Channel :	11	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 12:01:12

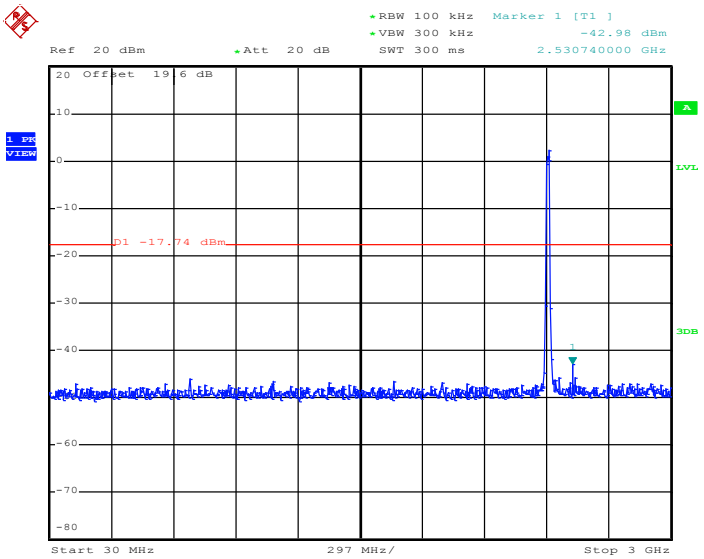
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 12:01:29

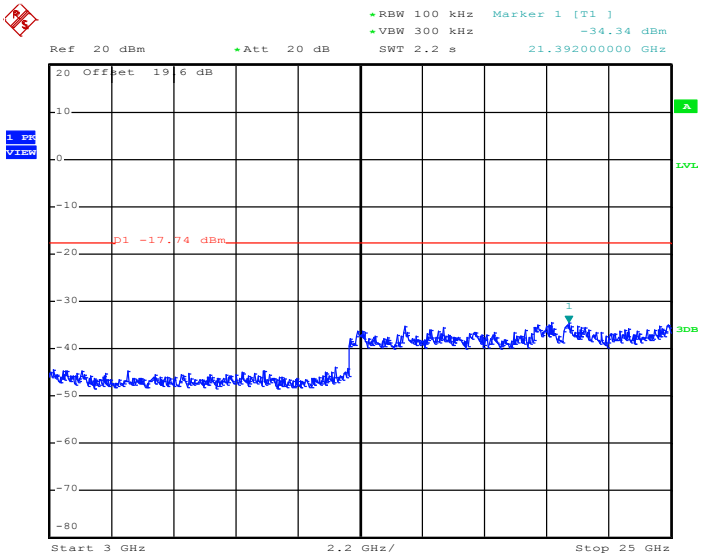
Test Mode :	Mode 4	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	48~52%
Test Channel :	01	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 11:39:20

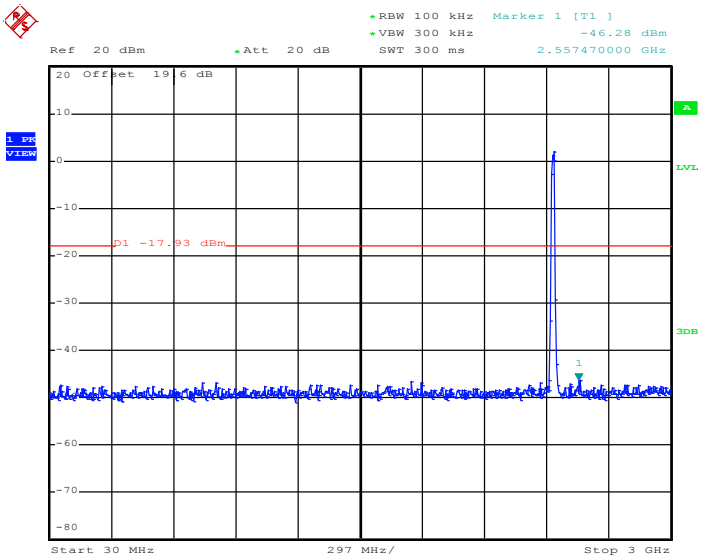
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 11:39:37

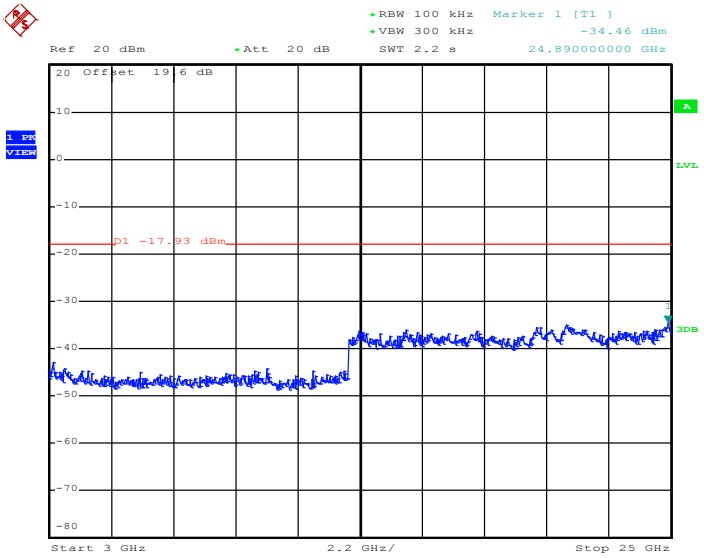
Test Mode :	Mode 5	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	48~52%
Test Channel :	06	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 11:24:11

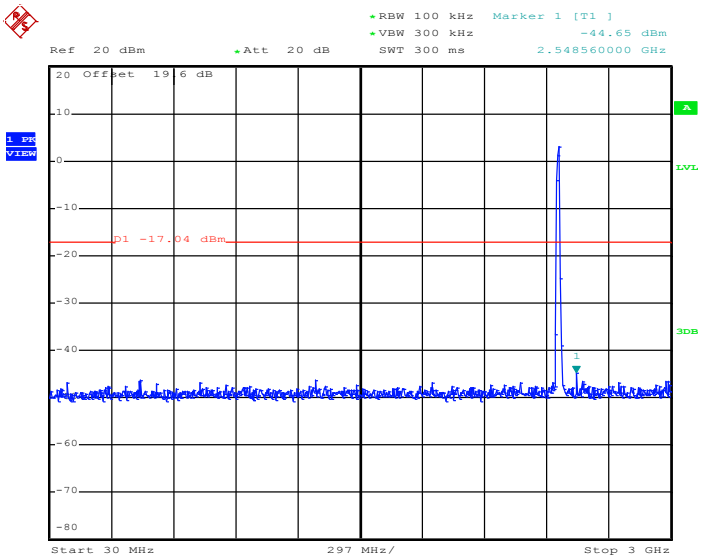
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 11:24:28

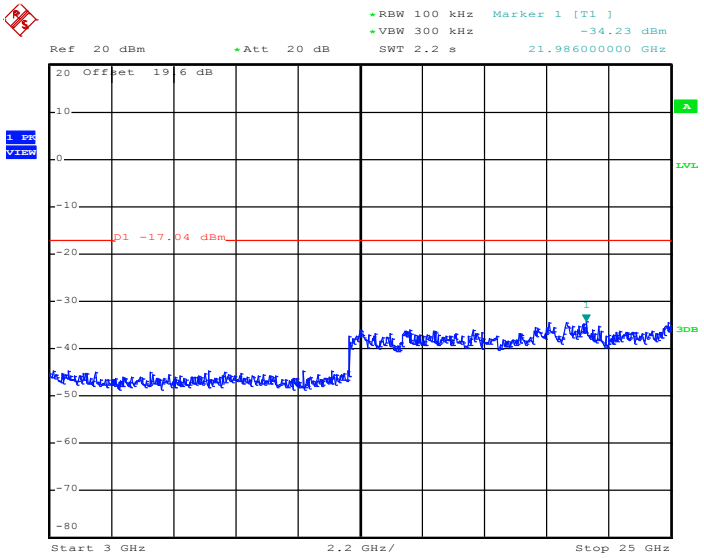
Test Mode :	Mode 6	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	48~52%
Test Channel :	11	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 11:09:01

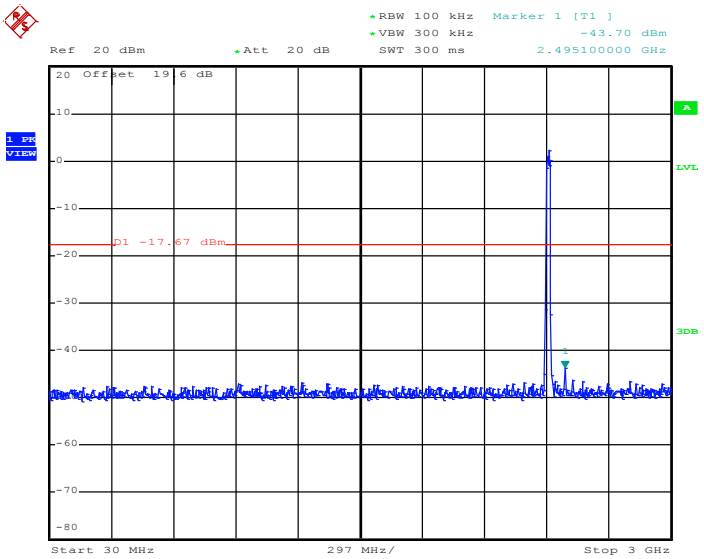
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 10.MAR.2011 11:09:18

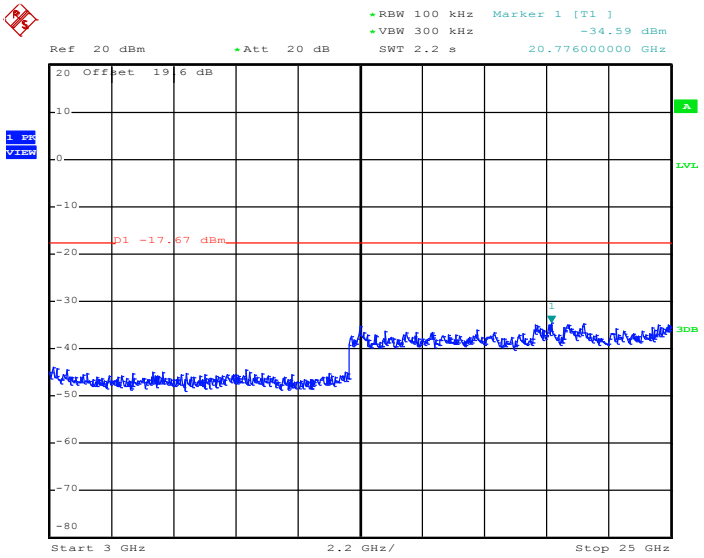
Test Mode :	Mode 7	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	01	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 12:35:42

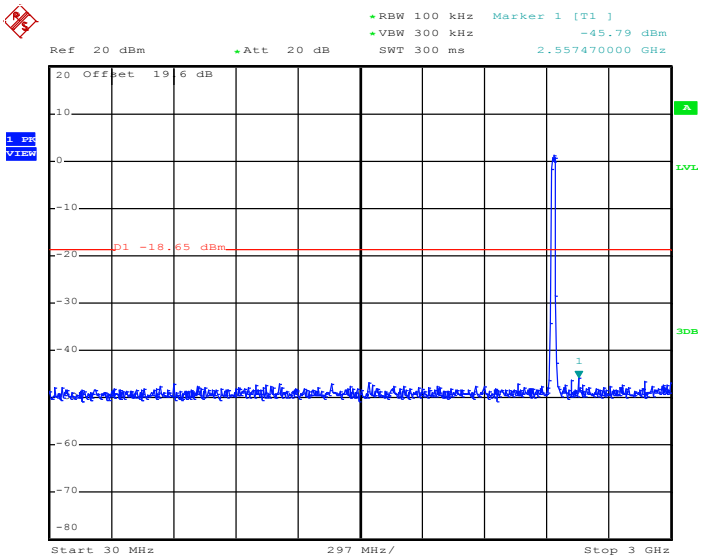
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 12:35:59

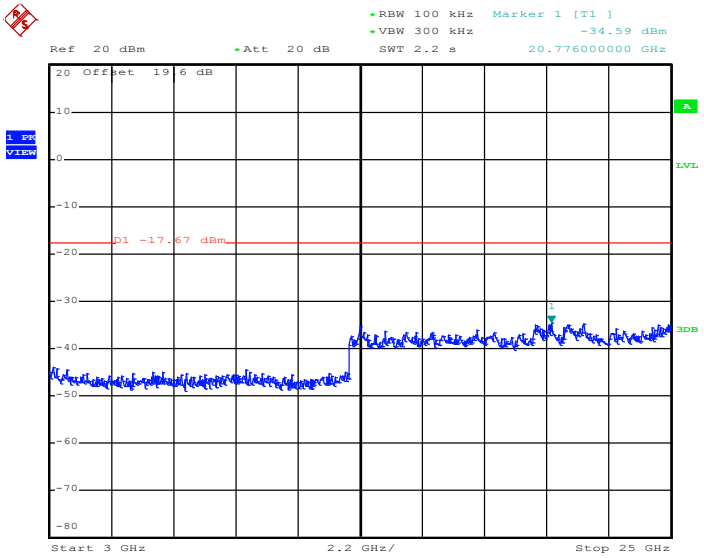
Test Mode :	Mode 8	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	06	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 12:49:03

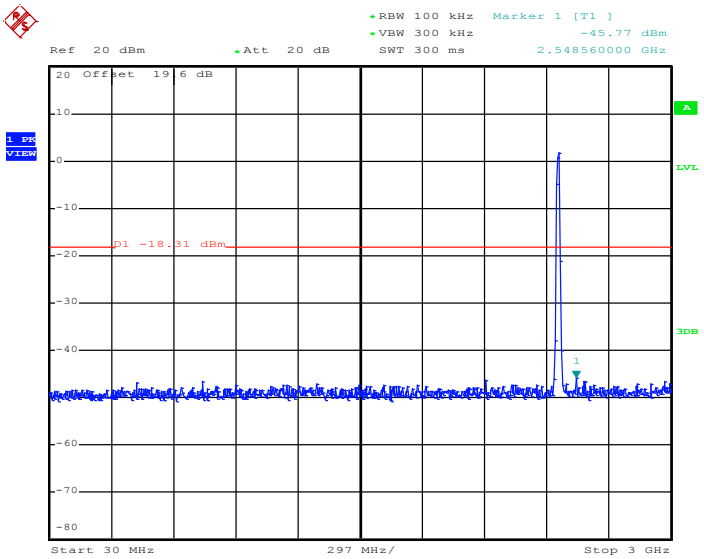
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 12:35:59

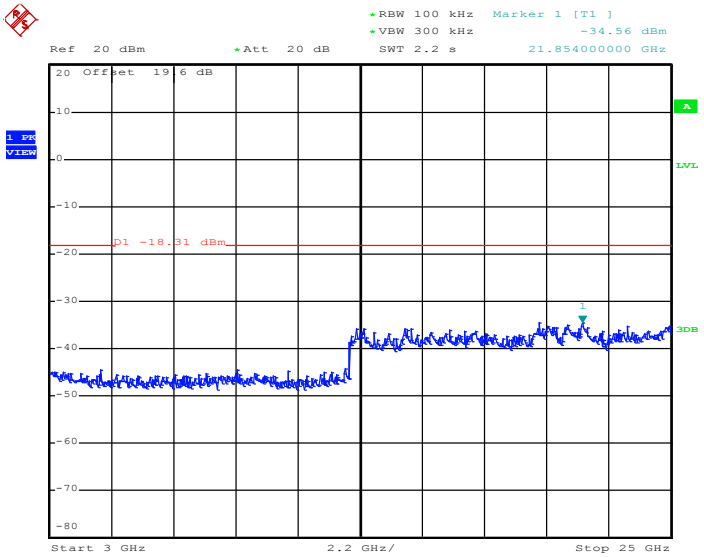
Test Mode :	Mode 9	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	11	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.MAR.2011 13:23:32

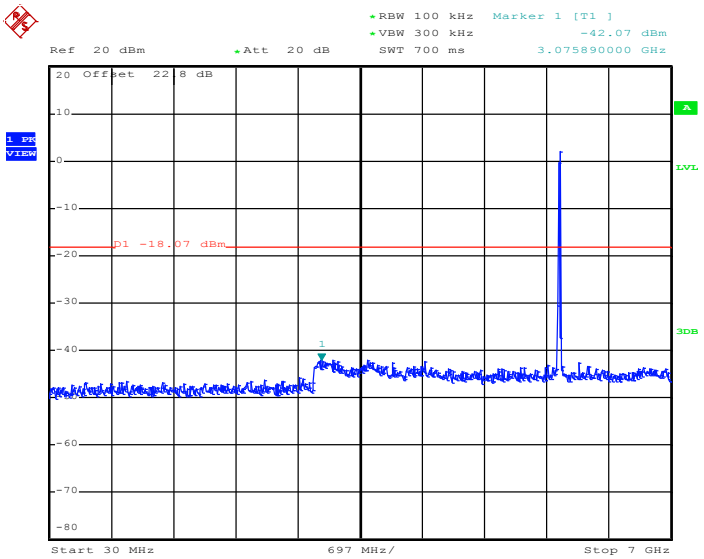
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.MAR.2011 13:23:49

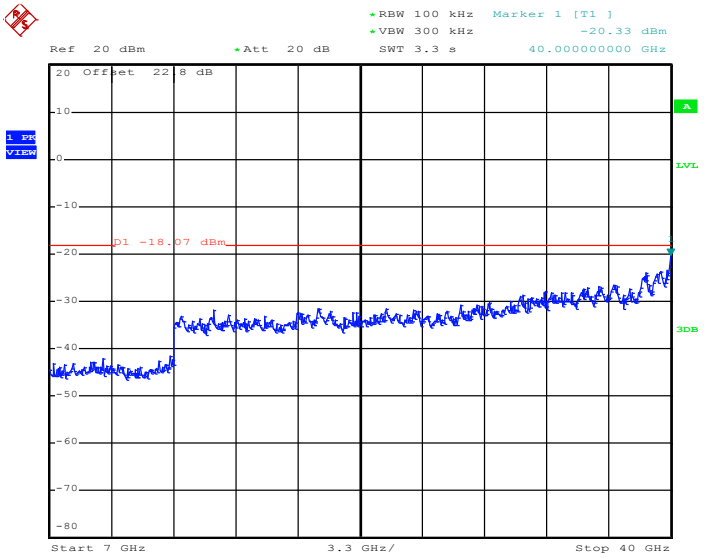
Test Mode :	Mode 10	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	48~52%
Test Channel :	149	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 08:23:21

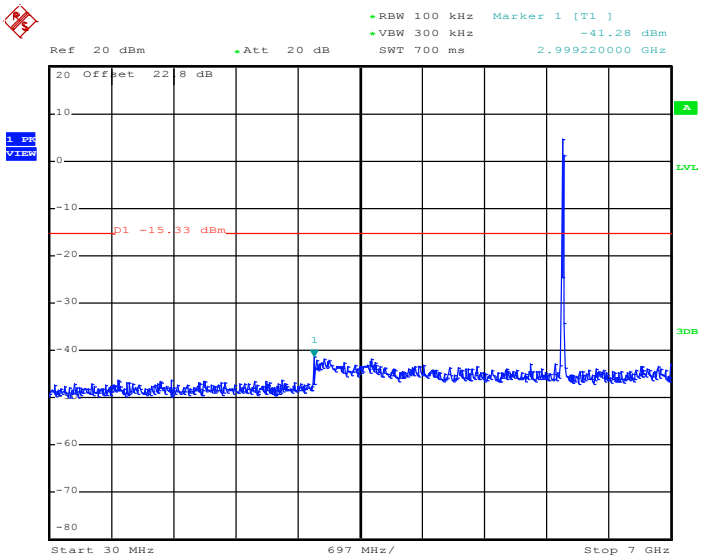
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 08:23:38

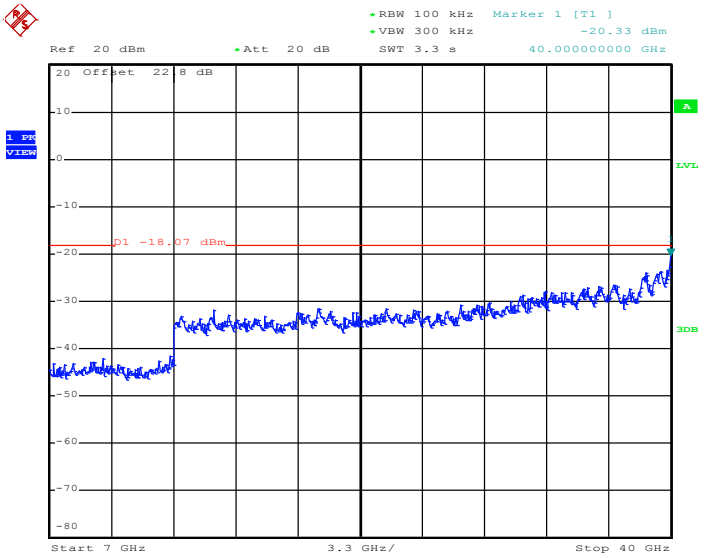
Test Mode :	Mode 11	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	48~52%
Test Channel :	157	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 08:38:20

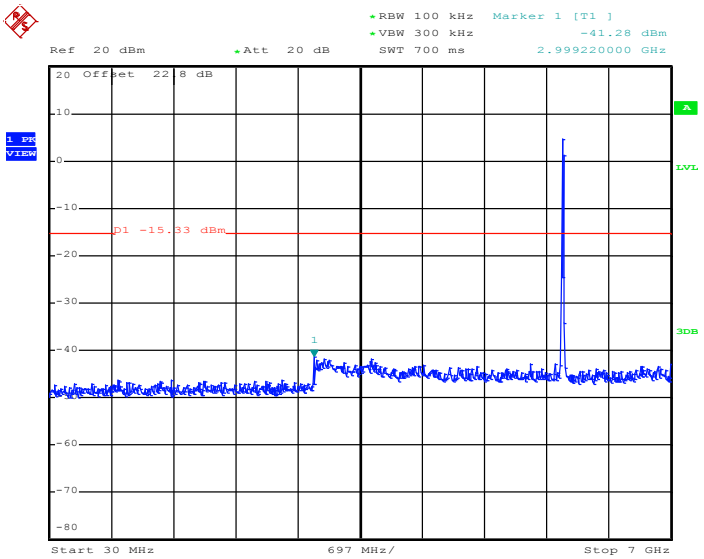
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 08:23:38

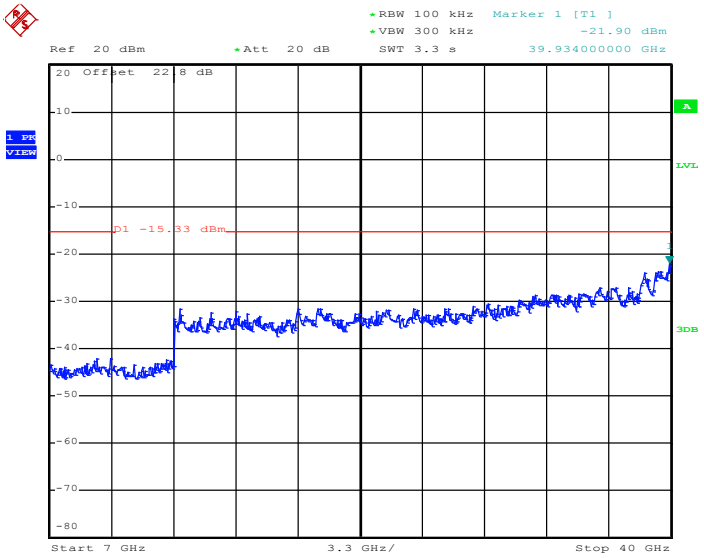
Test Mode :	Mode 12	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	48~52%
Test Channel :	165	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 08:38:20

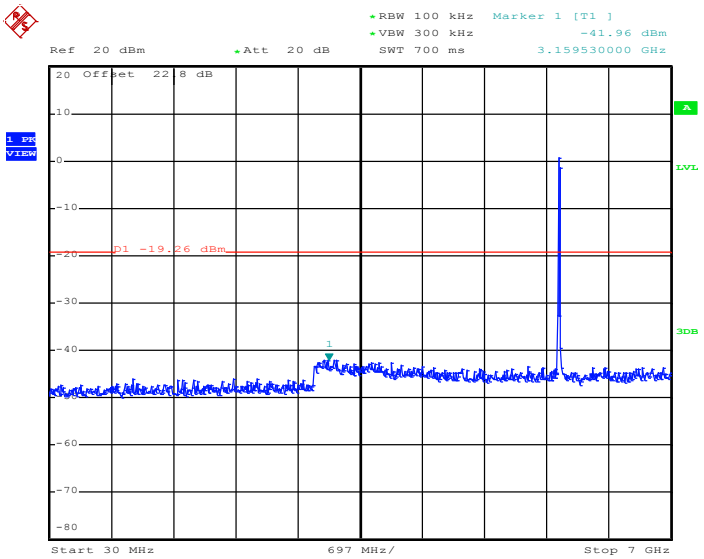
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 08:38:37

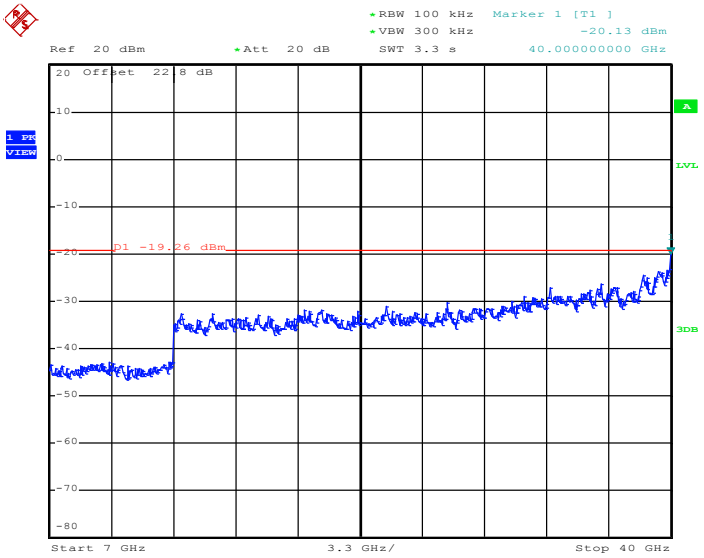
Test Mode :	Mode 13	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	149	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 09:36:46

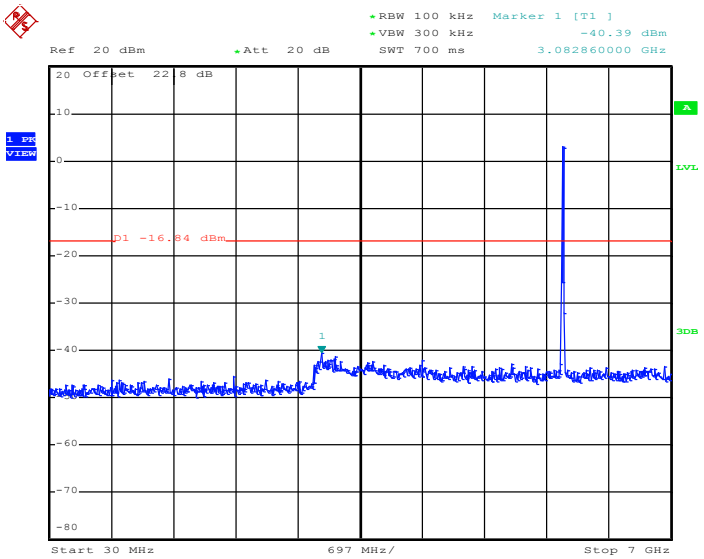
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 09:37:02

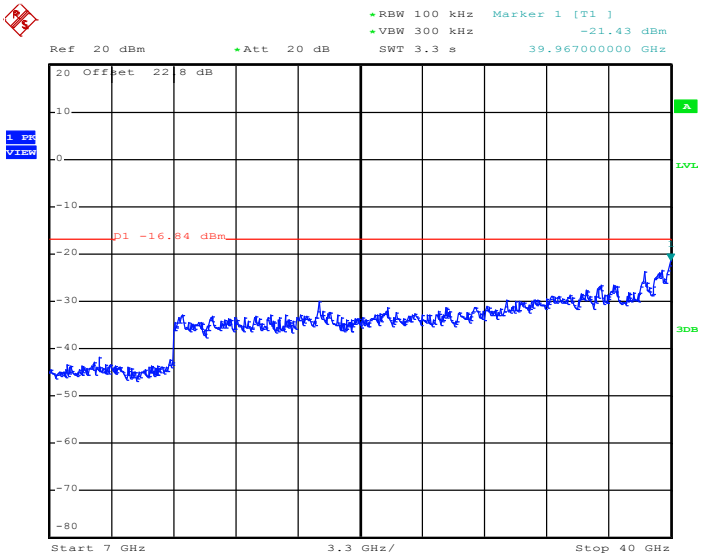
Test Mode :	Mode 14	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	157	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 09:22:18

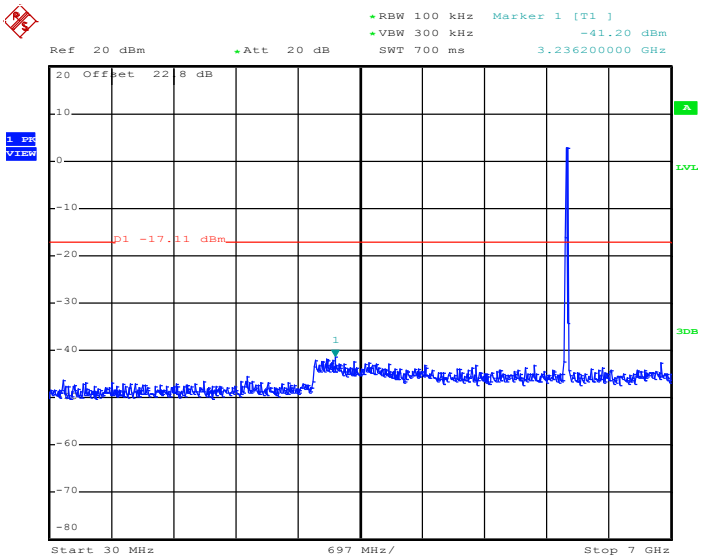
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 09:22:35

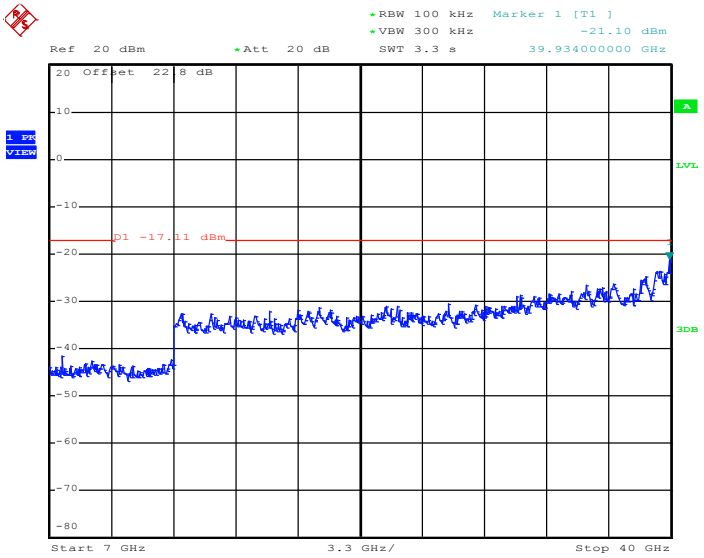
Test Mode :	Mode 15	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	48~52%
Test Channel :	165	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 23.MAR.2011 09:09:22

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 23.MAR.2011 09:09:39

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

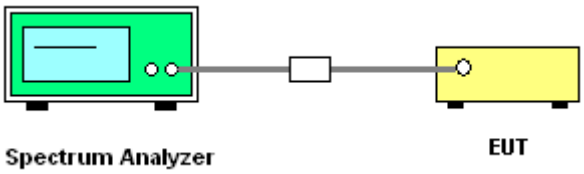
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.46	8	Pass
06	2437	-4.42	8	Pass
11	2462	-4.46	8	Pass

Test Mode :	Mode 4, 5, 6	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.73	8	Pass
06	2437	-10.67	8	Pass
11	2462	-10.52	8	Pass

Test Mode :	Mode 7, 8, 9	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.08	8	Pass
06	2437	-12.10	8	Pass
11	2462	-12.50	8	Pass

Test Mode :	Mode 10, 11, 12	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

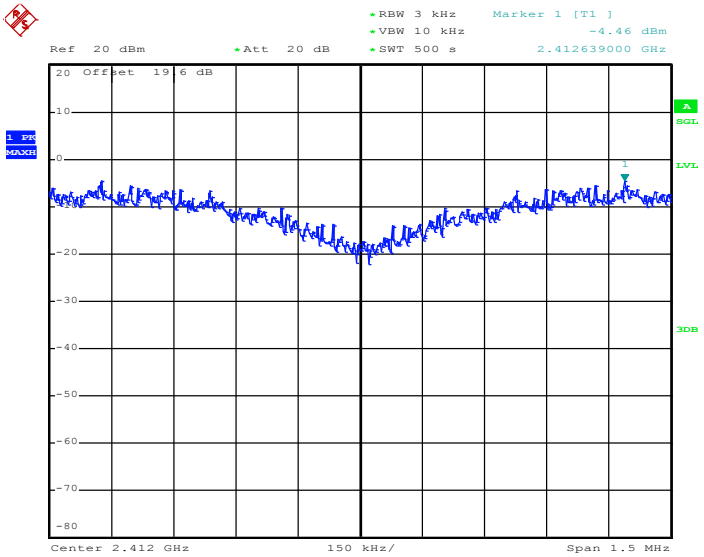
Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-10.60	8	Pass
157	5785	-8.78	8	Pass
165	5825	-8.04	8	Pass

Test Mode :	Mode 13, 14, 15	**Temperature :**	22~24℃
Test Engineer :	Pinkston Tu	**Relative Humidity :**	48~52%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-10.50	8	Pass
157	5785	-8.79	8	Pass
165	5825	-8.26	8	Pass

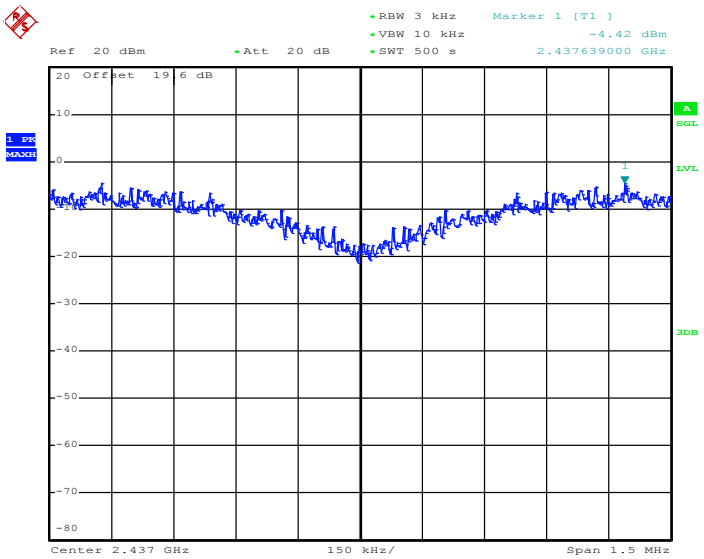
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



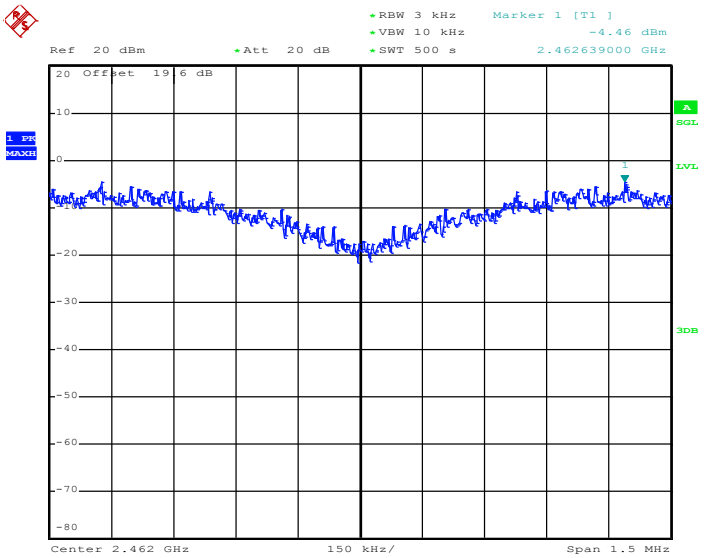
Date: 10.MAR.2011 10:22:53

Mode 2 : PSD Plot on 802.11b Channel 06



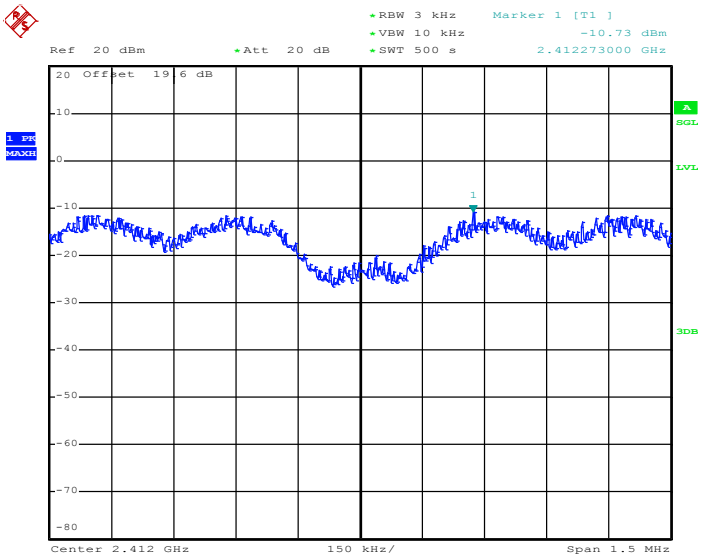
Date: 10.MAR.2011 12:18:14

Mode 3 : PSD Plot on 802.11b Channel 11



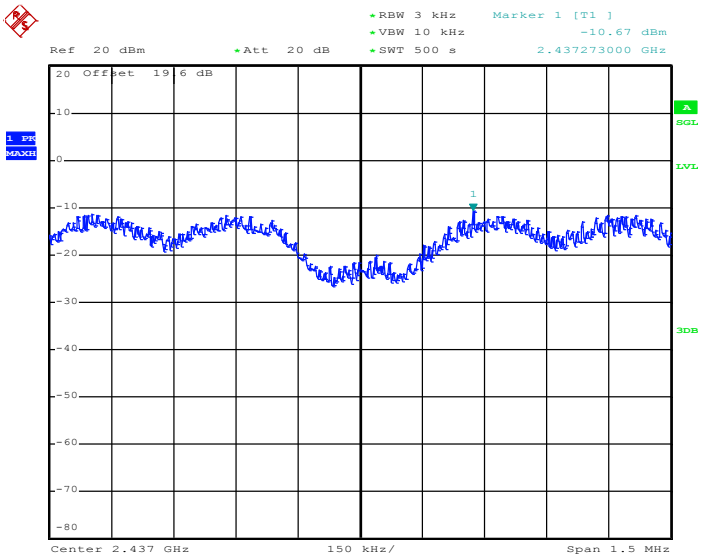
Date: 10.MAR.2011 12:00:52

Mode 4 : PSD Plot on 802.11g Channel 01



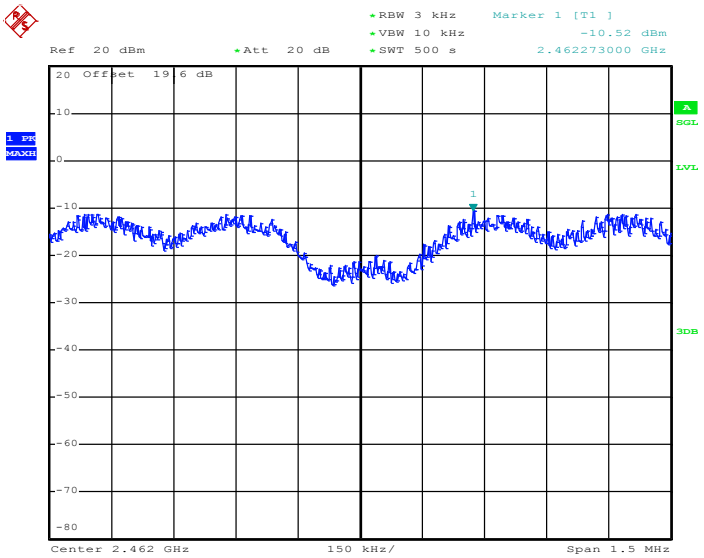
Date: 10.MAR.2011 11:38:59

Mode 5 : PSD Plot on 802.11g Channel 06



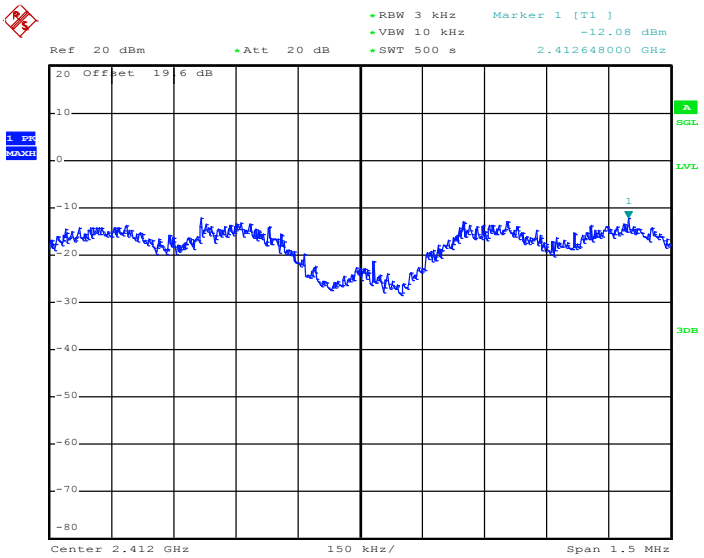
Date: 10.MAR.2011 11:23:50

Mode 6 : PSD Plot on 802.11g Channel 11



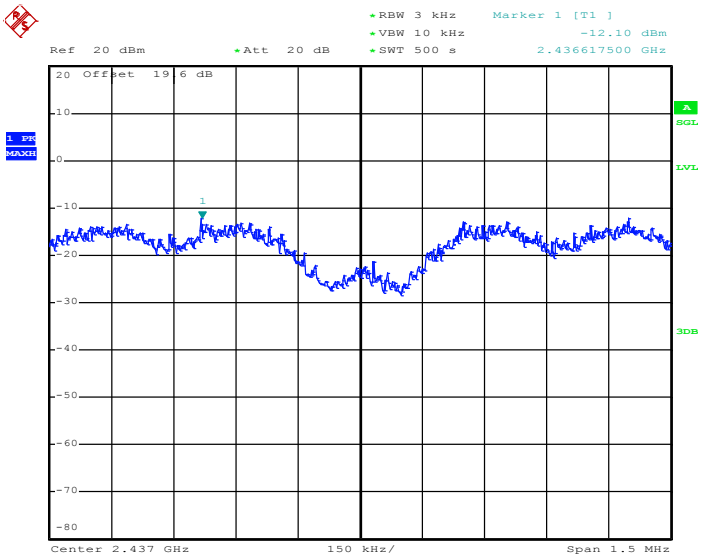
Date: 10.MAR.2011 11:08:40

Mode 7 : PSD Plot on 802.11n Channel 01



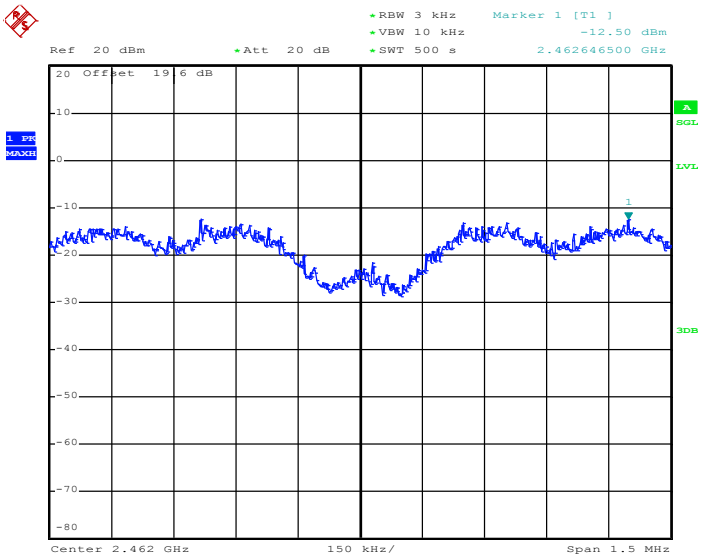
Date: 10.MAR.2011 12:35:21

Mode 8 : PSD Plot on 802.11n Channel 06



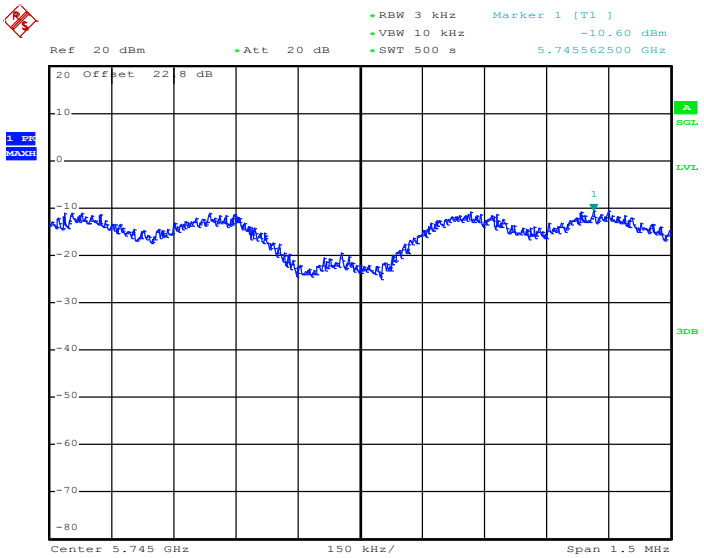
Date: 10.MAR.2011 12:48:42

Mode 9 : PSD Plot on 802.11n Channel 11



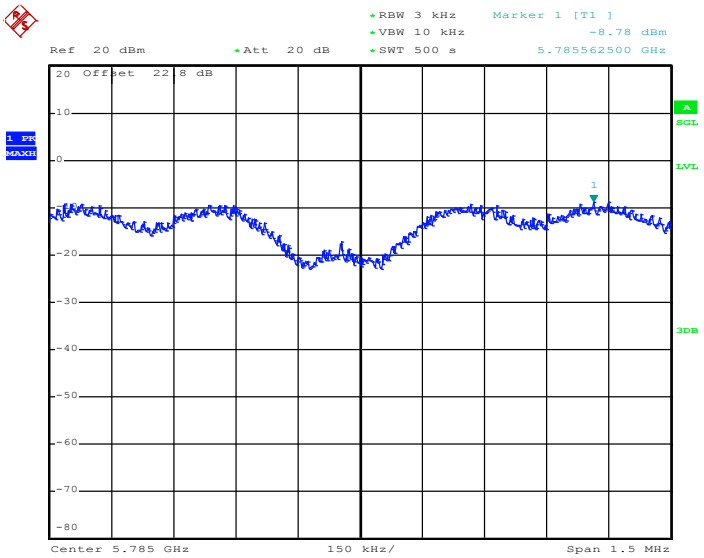
Date: 10.MAR.2011 13:23:11

Mode 10: PSD Plot on 802.11a Channel 149



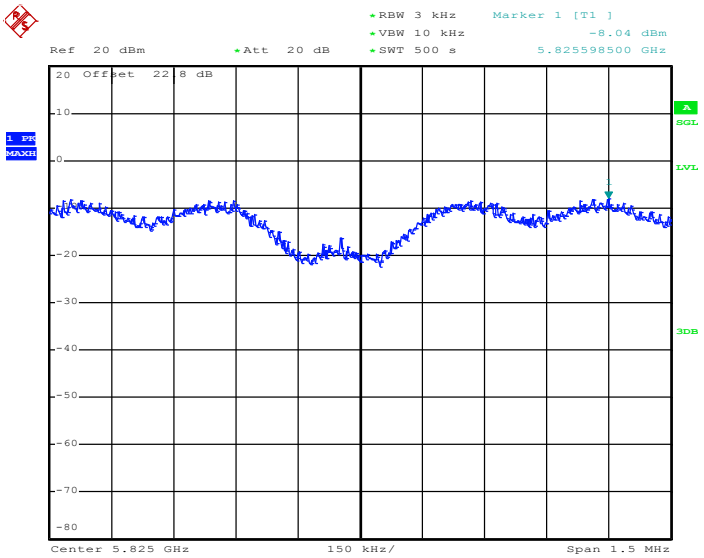
Date: 23.MAR.2011 08:23:01

Mode 11: PSD Plot on 802.11a Channel 157



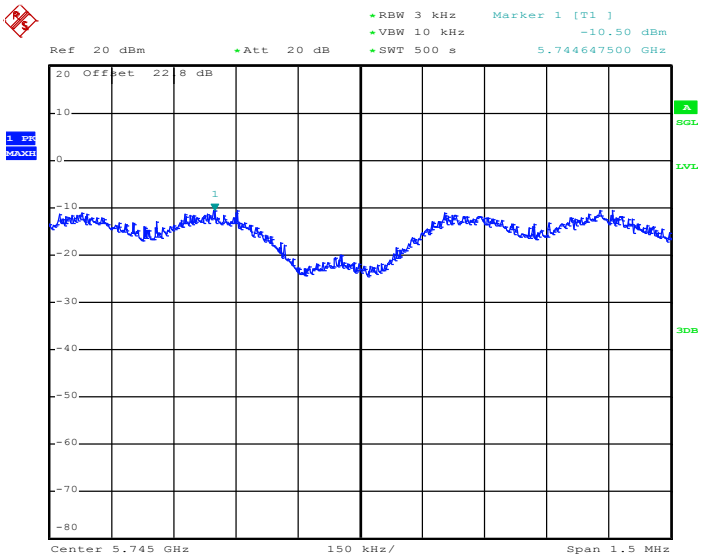
Date: 23.MAR.2011 08:37:59

Mode 12: PSD Plot on 802.11a Channel 165



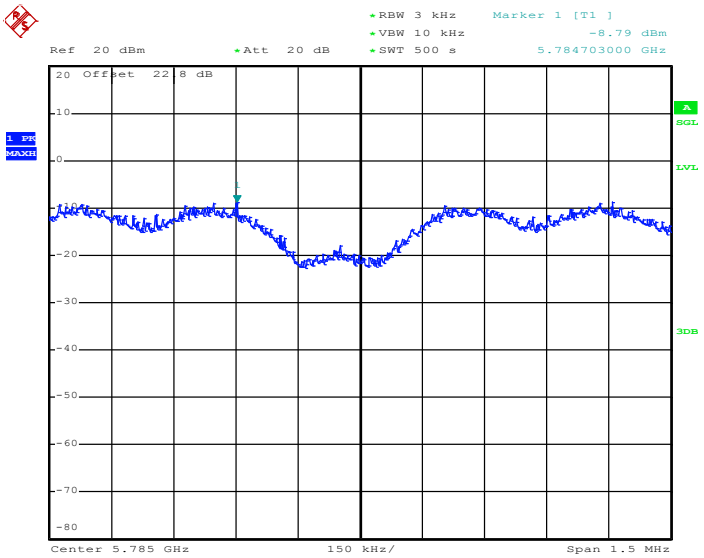
Date: 23.MAR.2011 08:51:44

Mode 13: PSD Plot on 802.11n Channel 149



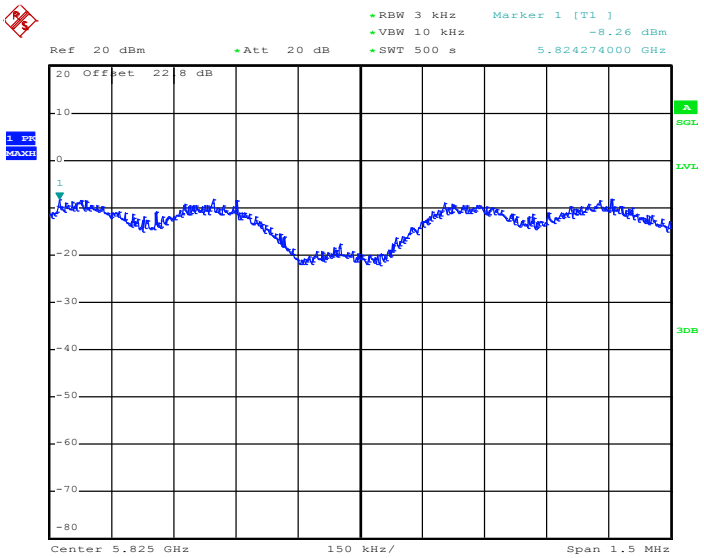
Date: 23.MAR.2011 09:36:25

Mode 14: PSD Plot on 802.11n Channel 157



Date: 23.MAR.2011 09:21:57

Mode 15: PSD Plot on 802.11n Channel 165



Date: 23.MAR.2011 09:08:07

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

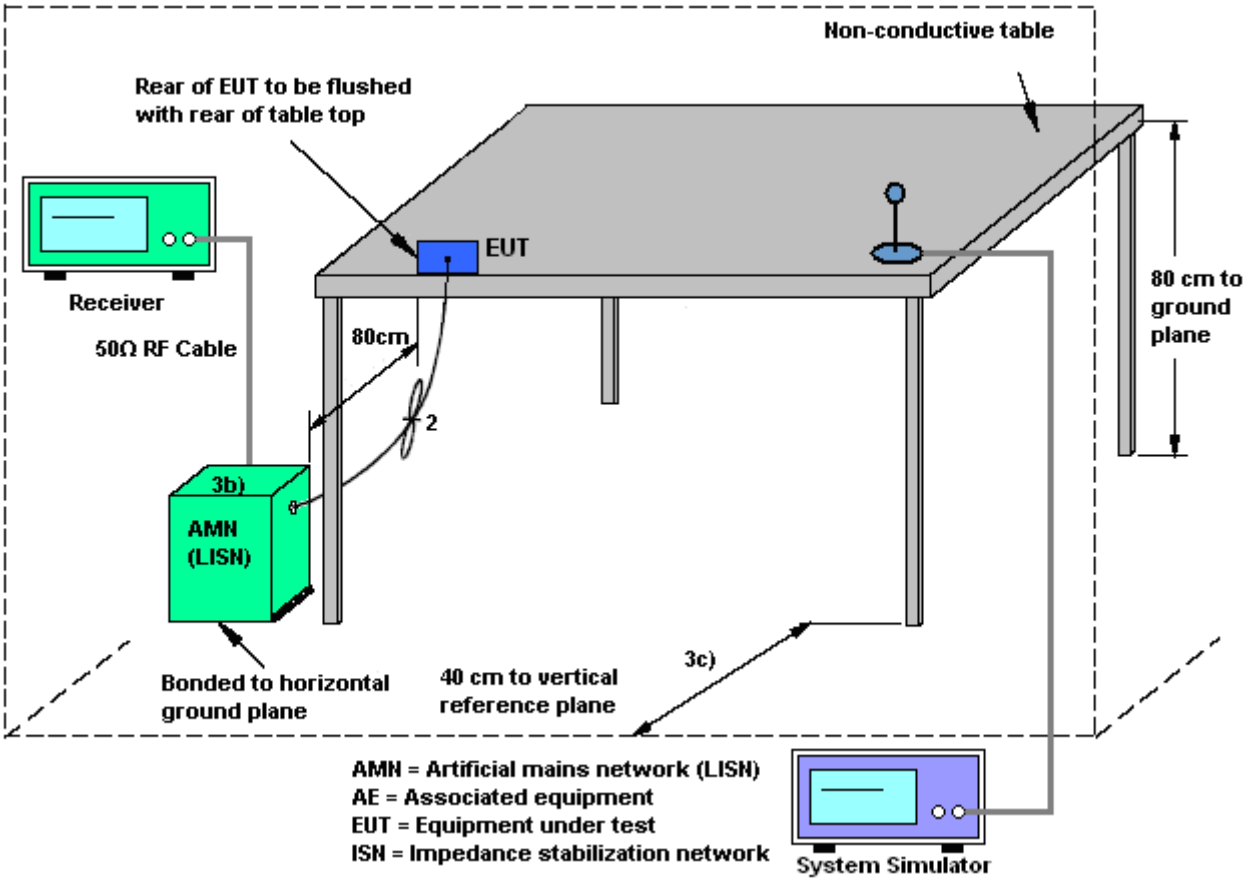
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

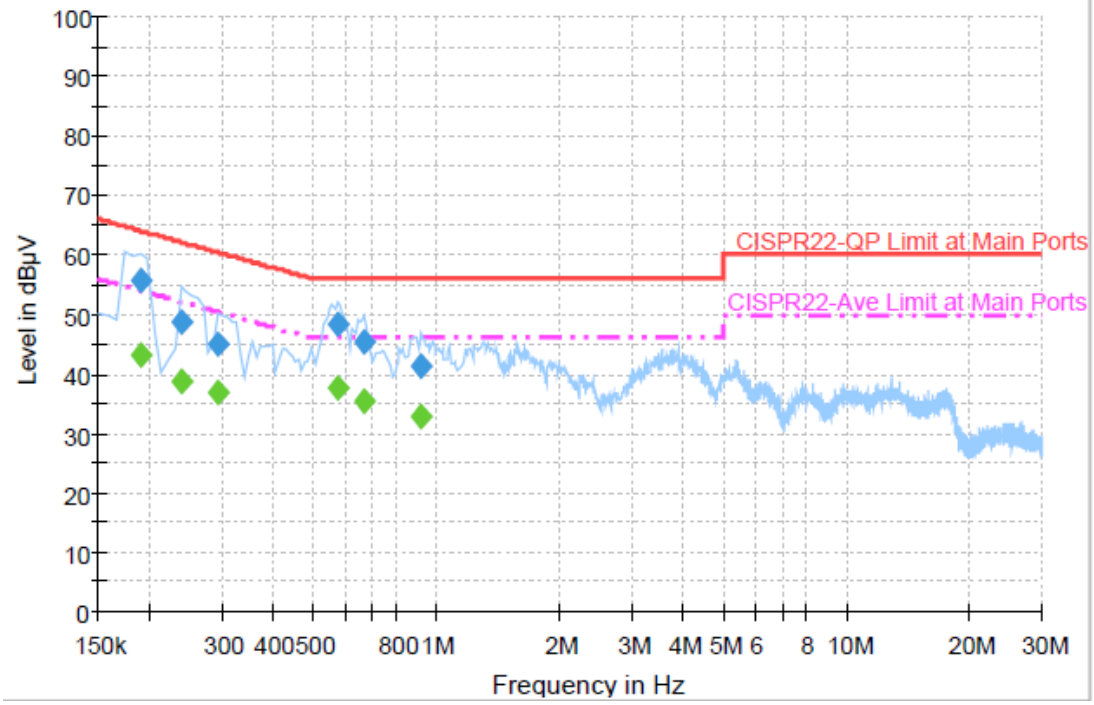
4. The testing follows the guidelines in ANSI C63.4-2003.
5. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
6. Connect EUT to the power mains through a line impedance stabilization network (LISN).
7. All the support units are connecting to the other LISN.
8. The LISN provides 50 ohm coupling impedance for the measuring instrument.
9. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
10. Both sides of AC line were checked for maximum conducted interference.
11. The frequency range from 150 kHz to 30 MHz was searched.
12. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Novic Chiang	**Relative Humidity :**	40~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



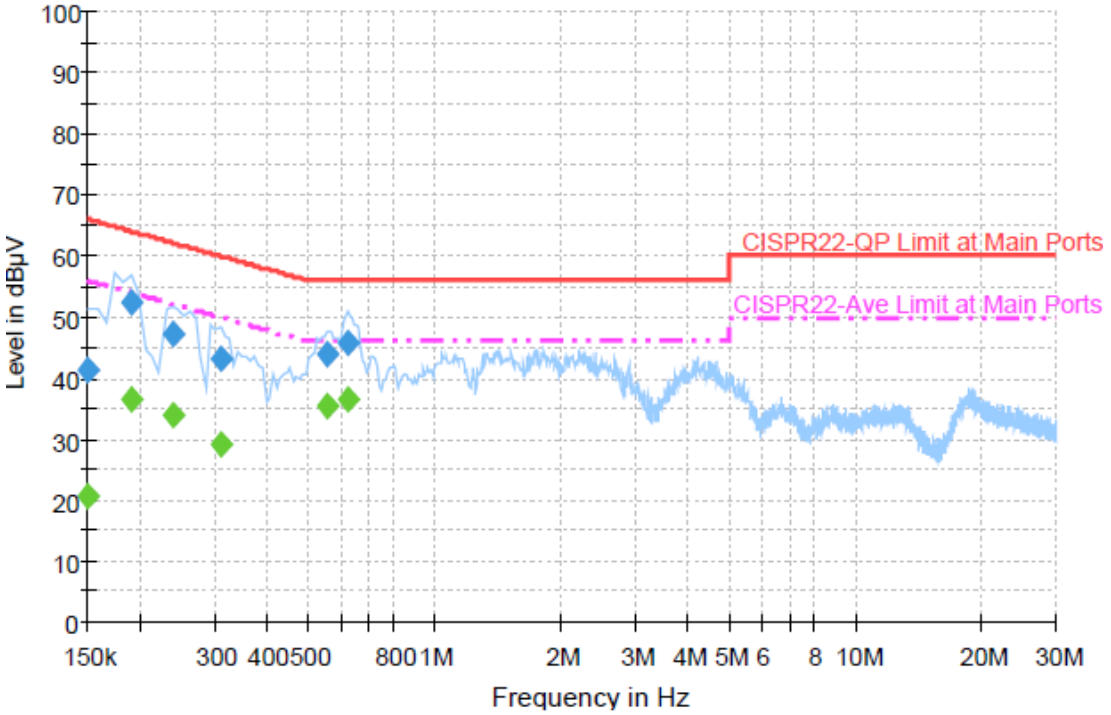
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	55.7	Off	L1	19.4	8.3	64.0
0.238000	48.7	Off	L1	19.4	13.5	62.2
0.294000	44.9	Off	L1	19.4	15.5	60.4
0.574000	48.5	Off	L1	19.4	7.5	56.0
0.670000	45.3	Off	L1	19.4	10.7	56.0
0.918000	41.4	Off	L1	19.4	14.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	43.3	Off	L1	19.4	10.7	54.0
0.238000	38.9	Off	L1	19.4	13.3	52.2
0.294000	36.9	Off	L1	19.4	13.5	50.4
0.574000	37.5	Off	L1	19.4	8.5	46.0
0.670000	35.4	Off	L1	19.4	10.6	46.0
0.918000	32.8	Off	L1	19.4	13.2	46.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Novic Chiang	**Relative Humidity :**	40~42%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + WLAN Link (2.4G) + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	41.2	Off	N	19.4	24.8	66.0
0.190000	52.5	Off	N	19.4	11.5	64.0
0.238000	47.1	Off	N	19.4	15.1	62.2
0.310000	43.3	Off	N	19.4	16.7	60.0
0.558000	44.0	Off	N	19.4	12.0	56.0
0.622000	45.6	Off	N	19.4	10.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	20.8	Off	N	19.4	35.2	56.0
0.190000	36.5	Off	N	19.4	17.5	54.0
0.238000	34.1	Off	N	19.4	18.1	52.2
0.310000	29.1	Off	N	19.4	20.9	50.0
0.558000	35.6	Off	N	19.4	10.4	46.0
0.622000	36.7	Off	N	19.4	9.3	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

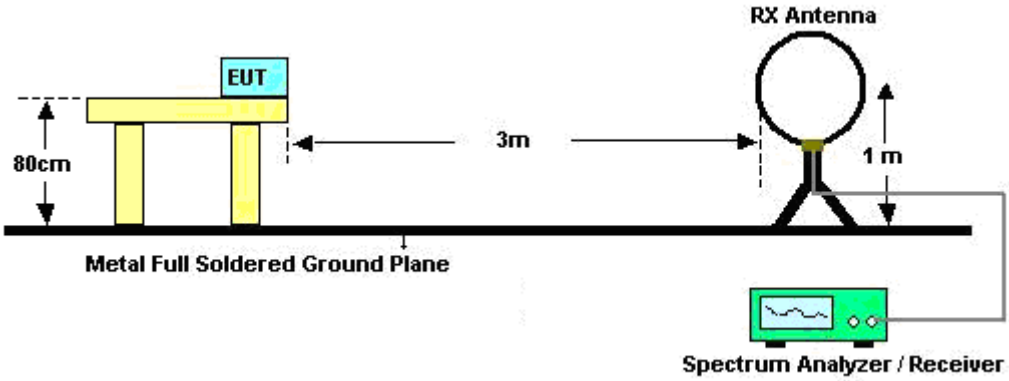
3.7.3 Test Procedures

1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for

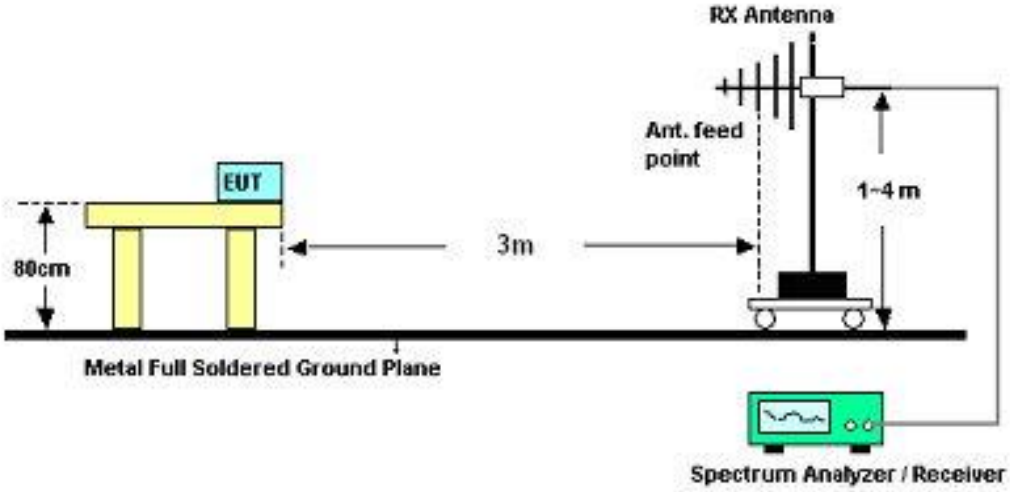
this test in order to get the good signal level.

3.7.4 Test Setup

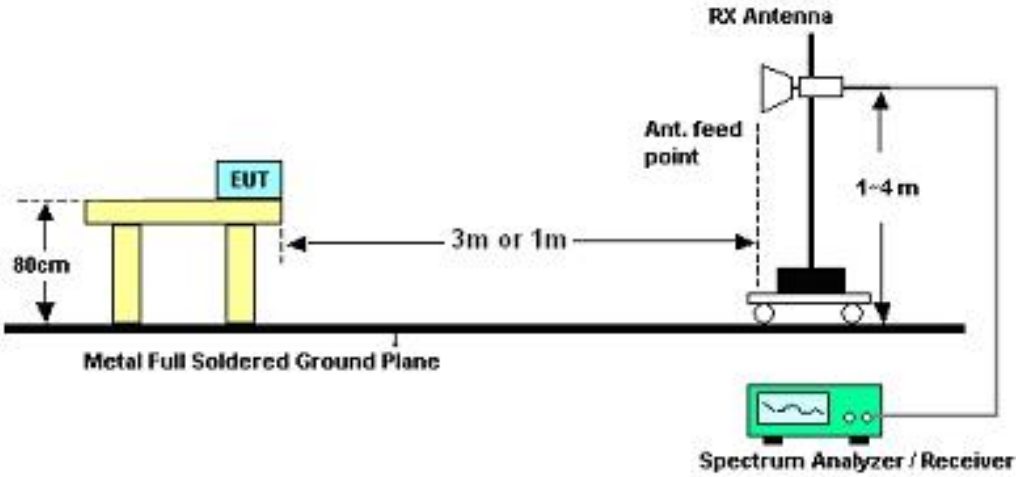
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Ivan Chiang and David Yang	**Temperature :**	24~25°C
		Relative Humidity :	49~51%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.7.6 Test Result of Radiated Emission (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
215.49	26.3	-17.2	43.5	46.18	10.2	1.39	31.47	-	-	Peak
263.82	30.64	-15.36	46	47.54	12.89	1.61	31.4	-	-	Peak
287.85	32.31	-13.69	46	48.69	13.27	1.68	31.33	-	-	Peak
310.5	35.88	-10.12	46	51.62	13.79	1.79	31.32	-	-	Peak
358.1	36.29	-9.71	46	50.25	15.27	2.04	31.27	124	188	Peak
394.5	28.08	-17.92	46	40.74	16.41	2.13	31.2	-	-	Peak
2384.1	55.8	-18.2	74	51.46	32.16	6.03	33.85	188	40	Peak
2384.1	46.24	-7.76	54	41.9	32.16	6.03	33.85	188	40	Average
2412	110.53	-	-	106.13	32.2	6.07	33.87	188	40	Peak
2412	106.7	-	-	102.3	32.2	6.07	33.87	188	40	Average
2500	35.92	-18.08	54	31.34	32.3	6.18	33.9	188	40	Average
2500	51.63	-22.37	74	47.05	32.3	6.18	33.9	188	40	Peak
2566	58.73	-31.8	90.53	54.1	32.38	6.26	34.01	100	0	Peak
2612	53.76	-36.77	90.53	49.09	32.44	6.31	34.08	100	0	Peak

Test Mode :	Mode 1	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.07	-9.93	40	44.94	16.04	0.55	31.46	109	58	Peak
51.33	24.4	-15.6	40	47.21	8.02	0.71	31.54	-	-	Peak
127.74	22.94	-20.56	43.5	41.8	11.57	1.14	31.57	-	-	Peak
310.5	23.32	-22.68	46	39.06	13.79	1.79	31.32	-	-	Peak
346.9	23.02	-22.98	46	37.43	14.93	1.95	31.29	-	-	Peak
654.9	21.55	-24.45	46	29.19	20.38	2.85	30.87	-	-	Peak
2384.1	54.27	-19.73	74	49.93	32.16	6.03	33.85	100	326	Peak
2384.1	44.53	-9.47	54	40.19	32.16	6.03	33.85	100	326	Average
2412	109.78	-	-	105.38	32.2	6.07	33.87	100	326	Peak
2412	105.88	-	-	101.48	32.2	6.07	33.87	100	326	Average
2494	35.88	-18.12	54	31.3	32.3	6.18	33.9	100	326	Average
2494	58.16	-15.84	74	53.58	32.3	6.18	33.9	100	326	Peak

Test Mode :	Mode 2	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	19.77	-20.23	40	34.88	15.8	0.56	31.47	-	-	Peak
264.09	31.25	-14.75	46	48.15	12.89	1.61	31.4	-	-	Peak
287.85	28.93	-17.07	46	45.31	13.27	1.68	31.33	-	-	Peak
310.5	33.57	-12.43	46	49.31	13.79	1.79	31.32	137	153	Peak
360.2	31.73	-14.27	46	45.61	15.33	2.06	31.27	-	-	Peak
407.8	28.91	-17.09	46	41.22	16.69	2.17	31.17	-	-	Peak
2390	47.82	-26.18	74	43.46	32.18	6.03	33.85	189	337	Peak
2390	36.47	-17.53	54	32.11	32.18	6.03	33.85	189	337	Average
2437	110.43	-	-	105.96	32.24	6.11	33.88	189	337	Peak
2437	106.45	-	-	101.98	32.24	6.11	33.88	189	337	Average
2494	51.27	-22.73	74	46.69	32.3	6.18	33.9	189	337	Peak
2494	40.59	-13.41	54	36.01	32.3	6.18	33.9	189	337	Average
2596	57.96	-32.47	90.43	53.3	32.42	6.28	34.04	100	0	Peak

Test Mode :	Mode 2	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.4	-9.6	40	45.27	16.04	0.55	31.46	104	221	Peak
51.06	23.93	-16.07	40	46.74	8.02	0.71	31.54	-	-	Peak
203.61	25.01	-18.49	43.5	45.79	9.37	1.33	31.48	-	-	Peak
335	26.89	-19.11	46	41.79	14.54	1.87	31.31	-	-	Peak
587	21	-25	46	29.73	19.56	2.65	30.94	-	-	Peak
831.3	25.09	-20.91	46	29.75	22.83	3.22	30.71	-	-	Peak
2390	50.83	-23.17	74	46.47	32.18	6.03	33.85	100	36	Peak
2390	39.02	-14.98	54	34.66	32.18	6.03	33.85	100	36	Average
2437	109.87	-	-	105.4	32.24	6.11	33.88	100	36	Peak
2437	105.93	-	-	101.46	32.24	6.11	33.88	100	36	Average
2484	51.22	-22.78	74	46.66	32.28	6.18	33.9	100	36	Peak
2484	37.91	-16.09	54	33.35	32.28	6.18	33.9	100	36	Average
2516	56.06	-33.81	89.87	51.47	32.32	6.21	33.94	100	0	Peak
2604	52.69	-37.18	89.87	48.04	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 3	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	19.93	-20.07	40	35.04	15.8	0.56	31.47	-	-	Peak
240.06	30.06	-15.94	46	47.97	11.98	1.53	31.42	-	-	Peak
287.85	33.65	-12.35	46	50.03	13.27	1.68	31.33	-	-	Peak
335	36.06	-9.94	46	50.96	14.54	1.87	31.31	-	-	Peak
358.1	36.88	-9.12	46	50.84	15.27	2.04	31.27	145	221	Peak
430.9	27.4	-18.6	46	39.21	17.07	2.25	31.13	-	-	Peak
2382	46.82	-27.18	74	42.48	32.16	6.03	33.85	187	348	Peak
2382	35.07	-18.93	54	30.73	32.16	6.03	33.85	187	348	Average
2462	110.95	-	-	106.44	32.26	6.14	33.89	187	348	Peak
2462	107.06	-	-	102.55	32.26	6.14	33.89	187	348	Average
2488.22	57.71	-16.29	74	53.13	32.3	6.18	33.9	187	348	Peak
2488.22	47.97	-6.03	54	43.39	32.3	6.18	33.9	187	348	Average
2542	61.98	-28.97	90.95	57.36	32.36	6.23	33.97	100	0	Peak
2580	54.06	-36.89	90.95	49.42	32.4	6.28	34.04	100	0	Peak
2628	59.34	-31.61	90.95	54.66	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 3	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.24	-9.76	40	45.35	15.8	0.56	31.47	133	192	Peak
51.06	24.14	-15.86	40	46.95	8.02	0.71	31.54	-	-	Peak
288.66	24.37	-21.63	46	40.72	13.29	1.69	31.33	-	-	Peak
310.5	26.01	-19.99	46	41.75	13.79	1.79	31.32	-	-	Peak
346.9	23.4	-22.6	46	37.81	14.93	1.95	31.29	-	-	Peak
687.8	23.12	-22.88	46	30.29	20.75	2.91	30.83	-	-	Peak
2380	53.77	-20.23	74	49.43	32.16	6.03	33.85	100	317	Peak
2380	35.91	-18.09	54	31.57	32.16	6.03	33.85	100	317	Average
2462	109.2	-	-	104.69	32.26	6.14	33.89	100	317	Peak
2462	105.29	-	-	100.78	32.26	6.14	33.89	100	317	Average
2488.41	54.77	-19.23	74	50.19	32.3	6.18	33.9	100	317	Peak
2488.41	44.98	-9.02	54	40.4	32.3	6.18	33.9	100	317	Average
2628	55.81	-33.39	89.2	51.13	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 4	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	20.2	-19.8	40	35.31	15.8	0.56	31.47	-	-	Peak
240.06	27.84	-18.16	46	45.75	11.98	1.53	31.42	-	-	Peak
287.85	33.35	-12.65	46	49.73	13.27	1.68	31.33	-	-	Peak
335	36.18	-9.82	46	51.08	14.54	1.87	31.31	-	-	Peak
358.1	36.24	-9.76	46	50.2	15.27	2.04	31.27	156	318	Peak
430.9	25.65	-20.35	46	37.46	17.07	2.25	31.13	-	-	Peak
2389.99	63.45	-10.55	74	59.09	32.18	6.03	33.85	118	42	Peak
2389.99	42.8	-11.2	54	38.44	32.18	6.03	33.85	118	42	Average
2412	110.1	-	-	105.7	32.2	6.07	33.87	118	42	Peak
2412	96.07	-	-	91.67	32.2	6.07	33.87	118	42	Average
2492	57.34	-16.66	74	52.76	32.3	6.18	33.9	118	42	Peak
2492	36.34	-17.66	54	31.76	32.3	6.18	33.9	118	42	Average
2534	55.14	-34.96	90.1	50.54	32.34	6.23	33.97	100	0	Peak
2580	58.41	-31.69	90.1	53.77	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 4	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.14	-9.86	40	45.25	15.8	0.56	31.47	114	182	Peak
51.33	24.25	-15.75	40	47.06	8.02	0.71	31.54	-	-	Peak
210.9	24.14	-19.36	43.5	44.39	9.86	1.36	31.47	-	-	Peak
335	27.28	-18.72	46	42.18	14.54	1.87	31.31	-	-	Peak
360.2	24.28	-21.72	46	38.16	15.33	2.06	31.27	-	-	Peak
660.5	22.27	-23.73	46	29.83	20.44	2.86	30.86	-	-	Peak
2389.42	62.49	-11.51	74	58.13	32.18	6.03	33.85	100	326	Peak
2389.42	43.1	-10.9	54	38.74	32.18	6.03	33.85	100	326	Average
2412	109.62	-	-	105.22	32.2	6.07	33.87	100	326	Peak
2412	95.55	-	-	91.15	32.2	6.07	33.87	100	326	Average
2492	35.57	-18.43	54	30.99	32.3	6.18	33.9	100	326	Average
2492	56.37	-17.63	74	51.79	32.3	6.18	33.9	100	326	Peak
2532	53.58	-36.04	89.62	48.98	32.34	6.23	33.97	100	0	Peak
2580	55.5	-34.12	89.62	50.86	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 5	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20.93	-19.07	40	35.8	16.04	0.55	31.46	-	-	Peak
264.09	31.71	-14.29	46	48.61	12.89	1.61	31.4	-	-	Peak
287.85	32.68	-13.32	46	49.06	13.27	1.68	31.33	-	-	Peak
335	33.86	-12.14	46	48.76	14.54	1.87	31.31	144	236	Peak
358.1	32.29	-13.71	46	46.25	15.27	2.04	31.27	-	-	Peak
407.8	26.02	-19.98	46	38.33	16.69	2.17	31.17	-	-	Peak
2350	48.24	-25.76	74	44.01	32.11	5.95	33.83	189	335	Peak
2350	34.41	-19.59	54	30.18	32.11	5.95	33.83	189	335	Average
2437	108.87	-	-	104.4	32.24	6.11	33.88	189	335	Peak
2437	95.44	-	-	90.97	32.24	6.11	33.88	189	335	Average
2484	52.56	-21.44	74	48	32.28	6.18	33.9	189	335	Peak
2484	36.83	-17.17	54	32.27	32.28	6.18	33.9	189	335	Average
2518	59.5	-29.37	88.87	54.91	32.32	6.21	33.94	100	0	Peak
2550	56.03	-32.84	88.87	51.42	32.36	6.26	34.01	100	0	Peak
2604	59.08	-29.79	88.87	54.43	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 5	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.25	-9.75	40	45.36	15.8	0.56	31.47	-	-	Peak
86.97	33.25	-6.75	40	55.62	8.24	0.92	31.53	111	83	Peak
269.22	25.71	-20.29	46	42.47	12.98	1.64	31.38	-	-	Peak
335	26.08	-19.92	46	40.98	14.54	1.87	31.31	-	-	Peak
358.1	23.75	-22.25	46	37.71	15.27	2.04	31.27	-	-	Peak
668.2	22.21	-23.79	46	29.65	20.53	2.88	30.85	-	-	Peak
2350	51.18	-22.82	74	46.95	32.11	5.95	33.83	100	312	Peak
2350	34.83	-19.17	54	30.6	32.11	5.95	33.83	100	312	Average
2437	108.31	-	-	103.84	32.24	6.11	33.88	100	312	Peak
2437	95.13	-	-	90.66	32.24	6.11	33.88	100	312	Average
2484	49.33	-24.67	74	44.77	32.28	6.18	33.9	100	312	Peak
2484	34.97	-19.03	54	30.41	32.28	6.18	33.9	100	312	Average
2516	56.38	-31.93	88.31	51.79	32.32	6.21	33.94	100	0	Peak

Test Mode :	Mode 6	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	20.63	-19.37	40	35.74	15.8	0.56	31.47	-	-	Peak
216.3	27.35	-18.65	46	47.14	10.27	1.4	31.46	-	-	Peak
287.85	32.91	-13.09	46	49.29	13.27	1.68	31.33	136	218	Peak
335	32.23	-13.77	46	47.13	14.54	1.87	31.31	-	-	Peak
407.8	28.64	-17.36	46	40.95	16.69	2.17	31.17	-	-	Peak
716.5	23.39	-22.61	46	30.04	21.15	2.98	30.78	-	-	Peak
2382	48.45	-25.55	74	44.11	32.16	6.03	33.85	186	347	Peak
2382	33.89	-20.11	54	29.55	32.16	6.03	33.85	186	347	Average
2462	96.06	-	-	91.55	32.26	6.14	33.89	186	347	Average
2462	109.79	-	-	105.28	32.26	6.14	33.89	186	347	Peak
2483.5	63.83	-10.17	74	59.27	32.28	6.18	33.9	186	347	Peak
2483.5	45.8	-8.2	54	41.24	32.28	6.18	33.9	186	347	Average
2542	60.32	-29.47	89.79	55.7	32.36	6.23	33.97	100	0	Peak
2582	55.45	-34.34	89.79	50.81	32.4	6.28	34.04	100	0	Peak
2628	58.27	-31.52	89.79	53.59	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 6	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.24	-9.76	40	45.11	16.04	0.55	31.46	105	44	Peak
51.06	24.17	-15.83	40	46.98	8.02	0.71	31.54	-	-	Peak
225.21	28.77	-17.23	46	47.88	10.89	1.45	31.45	-	-	Peak
335	28.32	-17.68	46	43.22	14.54	1.87	31.31	-	-	Peak
358.1	25.83	-20.17	46	39.79	15.27	2.04	31.27	-	-	Peak
637.4	22.66	-23.34	46	30.56	20.18	2.8	30.88	-	-	Peak
2380	52.03	-21.97	74	47.69	32.16	6.03	33.85	100	318	Peak
2380	34.36	-19.64	54	30.02	32.16	6.03	33.85	100	318	Average
2462	95	-	-	90.49	32.26	6.14	33.89	100	318	Average
2462	108.44	-	-	103.93	32.26	6.14	33.89	100	318	Peak
2483.5	62.66	-11.34	74	58.1	32.28	6.18	33.9	100	318	Peak
2483.5	44.05	-9.95	54	39.49	32.28	6.18	33.9	100	318	Average
2540	53.48	-34.96	88.44	48.86	32.36	6.23	33.97	100	0	Peak
2582	50.18	-38.26	88.44	45.54	32.4	6.28	34.04	100	0	Peak
2628	55.06	-33.38	88.44	50.38	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 7	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
240.06	29.73	-16.27	46	47.64	11.98	1.53	31.42	-	-	Peak
264.09	31.17	-14.83	46	48.07	12.89	1.61	31.4	-	-	Peak
287.85	32.27	-13.73	46	48.65	13.27	1.68	31.33	-	-	Peak
358.1	34.97	-11.03	46	48.93	15.27	2.04	31.27	162	174	Peak
383.3	27.76	-18.24	46	40.83	16.05	2.11	31.23	-	-	Peak
612.2	21.83	-24.17	46	30.11	19.9	2.73	30.91	-	-	Peak
2389.61	59.15	-14.85	74	54.79	32.18	6.03	33.85	119	41	Peak
2389.61	41.37	-12.63	54	37.01	32.18	6.03	33.85	119	41	Average
2412	108.7	-	-	104.3	32.2	6.07	33.87	119	41	Peak
2412	91.31	-	-	86.91	32.2	6.07	33.87	119	41	Average
2494	33.89	-20.11	54	29.31	32.3	6.18	33.9	119	41	Average
2494	55.42	-18.58	74	50.84	32.3	6.18	33.9	119	41	Peak
2526	55.15	-33.55	88.7	50.55	32.34	6.23	33.97	100	0	Peak
2580	58.19	-30.51	88.7	53.55	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 7	**Temperature :**	24~25°C
Test Channel :	01	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.08	-9.92	40	45.19	15.8	0.56	31.47	106	223	Peak
82.65	28.63	-11.37	40	51.76	7.51	0.89	31.53	-	-	Peak
162.3	23.07	-20.43	43.5	43.11	10.26	1.22	31.52	-	-	Peak
358.1	24.58	-21.42	46	38.54	15.27	2.04	31.27	-	-	Peak
615	21.78	-24.22	46	30.03	19.93	2.73	30.91	-	-	Peak
825	25.35	-20.65	46	30.09	22.76	3.21	30.71	-	-	Peak
2389.99	64.02	-9.98	74	59.66	32.18	6.03	33.85	100	33	Peak
2389.99	44.06	-9.94	54	39.7	32.18	6.03	33.85	100	33	Average
2412	90.89	-	-	86.49	32.2	6.07	33.87	100	33	Average
2412	107.46	-	-	103.06	32.2	6.07	33.87	100	33	Peak
2494	34.55	-19.45	54	29.97	32.3	6.18	33.9	100	33	Average
2494	57.25	-16.75	74	52.67	32.3	6.18	33.9	100	33	Peak
2534	55.87	-31.59	87.46	51.27	32.34	6.23	33.97	100	0	Peak
2580	60.73	-26.73	87.46	56.09	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 8	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
55.65	30.74	-9.26	40	54.59	6.97	0.73	31.55	-	-	Peak
264.09	30.71	-15.29	46	47.61	12.89	1.61	31.4	-	-	Peak
287.85	34.14	-11.86	46	50.52	13.27	1.68	31.33	-	-	Peak
335	37.69	-8.31	46	52.59	14.54	1.87	31.31	152	228	Peak
358.1	36.47	-9.53	46	50.43	15.27	2.04	31.27	-	-	Peak
407.8	31.06	-14.94	46	43.37	16.69	2.17	31.17	-	-	Peak
2358	47.43	-26.57	74	43.15	32.13	5.99	33.84	188	339	Peak
2358	34.24	-19.76	54	29.96	32.13	5.99	33.84	188	339	Average
2437	107.71	-	-	103.24	32.24	6.11	33.88	188	339	Peak
2437	90.26	-	-	85.79	32.24	6.11	33.88	188	339	Average
2484	52.05	-21.95	74	47.49	32.28	6.18	33.9	188	339	Peak
2484	36.15	-17.85	54	31.59	32.28	6.18	33.9	188	339	Average
2516	58.3	-29.41	87.71	53.71	32.32	6.21	33.94	100	0	Peak
2556	54.27	-33.44	87.71	49.64	32.38	6.26	34.01	100	0	Peak
2604	57.35	-30.36	87.71	52.7	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 8	**Temperature :**	24~25°C
Test Channel :	06	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	30.59	-9.41	40	45.46	16.04	0.55	31.46	100	132	Peak
51.06	24.15	-15.85	40	46.96	8.02	0.71	31.54	-	-	Peak
167.7	20.97	-22.53	43.5	41.37	9.89	1.23	31.52	-	-	Peak
335	24.57	-21.43	46	39.47	14.54	1.87	31.31	-	-	Peak
477.8	18.43	-27.57	46	29.26	17.86	2.37	31.06	-	-	Peak
813.8	24.79	-21.21	46	29.67	22.63	3.18	30.69	-	-	Peak
2358	50.13	-23.87	74	45.85	32.13	5.99	33.84	100	36	Peak
2358	35.18	-18.82	54	30.9	32.13	5.99	33.84	100	36	Average
2437	107.1	-	-	102.65	32.22	6.11	33.88	100	36	Peak
2437	90.29	-	-	85.82	32.24	6.11	33.88	100	36	Average
2484	48.71	-25.29	74	44.15	32.28	6.18	33.9	100	36	Peak
2484	34.72	-19.28	54	30.16	32.28	6.18	33.9	100	36	Average
2510	54.78	-32.32	87.1	50.19	32.32	6.21	33.94	100	0	Peak
2604	55.68	-31.42	87.1	51.03	32.42	6.31	34.08	100	0	Peak
31.62	30.59	-9.41	40	45.46	16.04	0.55	31.46	100	132	Peak

Test Mode :	Mode 9	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
215.49	23.78	-19.72	43.5	43.66	10.2	1.39	31.47	-	-	Peak
240.06	26.66	-19.34	46	44.57	11.98	1.53	31.42	-	-	Peak
264.09	29.57	-16.43	46	46.47	12.89	1.61	31.4	-	-	Peak
310.5	32.6	-13.4	46	48.34	13.79	1.79	31.32	114	100	Peak
335	32.17	-13.83	46	47.07	14.54	1.87	31.31	-	-	Peak
358.1	31	-15	46	44.96	15.27	2.04	31.27	-	-	Peak
2382	48.49	-25.51	74	44.15	32.16	6.03	33.85	185	345	Peak
2382	33.75	-20.25	54	29.41	32.16	6.03	33.85	185	345	Average
2462	107.87	-	-	103.36	32.26	6.14	33.89	185	345	Peak
2462	90.77	-	-	86.26	32.26	6.14	33.89	185	345	Average
2484.61	62.7	-11.3	74	58.14	32.28	6.18	33.9	185	345	Peak
2484.61	43.95	-10.05	54	39.39	32.28	6.18	33.9	185	345	Average
2542	59.07	-28.8	87.87	54.45	32.36	6.23	33.97	100	0	Peak
2582	54.01	-33.86	87.87	49.37	32.4	6.28	34.04	100	0	Peak
2628	57.24	-30.63	87.87	52.56	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 9	**Temperature :**	24~25°C
Test Channel :	11	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.39	-9.61	40	45.5	15.8	0.56	31.47	126	304	Peak
226.02	28.36	-17.64	46	47.4	10.95	1.46	31.45	-	-	Peak
287.85	24.4	-21.6	46	40.78	13.27	1.68	31.33	-	-	Peak
358.1	24.3	-21.7	46	38.26	15.27	2.04	31.27	-	-	Peak
590.5	21.26	-24.74	46	29.91	19.62	2.66	30.93	-	-	Peak
794.2	24.12	-21.88	46	29.29	22.38	3.13	30.68	-	-	Peak
2382	51.95	-22.05	74	47.61	32.16	6.03	33.85	100	29	Peak
2382	34.71	-19.29	54	30.37	32.16	6.03	33.85	100	29	Average
2462	107.71	-	-	103.2	32.26	6.14	33.89	100	29	Peak
2462	89.86	-	-	85.35	32.26	6.14	33.89	100	29	Average
2483.5	61.75	-12.25	74	57.19	32.28	6.18	33.9	100	29	Peak
2483.5	42.8	-11.2	54	38.24	32.28	6.18	33.9	100	29	Average
2542	53.79	-33.92	87.71	49.17	32.36	6.23	33.97	100	0	Peak
2588	52.25	-35.46	87.71	47.61	32.4	6.28	34.04	100	0	Peak
2628	59.23	-28.48	87.71	54.55	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 10	**Temperature :**	24~25°C
Test Channel :	149	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5475 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
240.06	27.18	-18.82	46	45.09	11.98	1.53	31.42	-	-	Peak
264.09	31.68	-14.32	46	48.58	12.89	1.61	31.4	-	-	Peak
287.85	34.42	-11.58	46	50.8	13.27	1.68	31.33	-	-	Peak
310.5	33.61	-12.39	46	49.35	13.79	1.79	31.32	-	-	Peak
358.1	35.43	-10.57	46	49.39	15.27	2.04	31.27	135	221	Peak
407.8	27.14	-18.86	46	39.45	16.69	2.17	31.17	-	-	Peak
5745	106.61	-	-	95.07	34.84	9.91	33.21	109	321	Peak
5745	96.04	-	-	84.5	34.84	9.91	33.21	109	321	Average
6908	59.99	-26.62	86.61	48.68	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 10	**Temperature :**	24~25°C
Test Channel :	149	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5475 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.78	29.58	-10.42	40	44.91	15.57	0.57	31.47	110	41	Peak
51.33	24.06	-15.94	40	46.87	8.02	0.71	31.54	-	-	Peak
238.17	25.08	-20.92	46	43.13	11.85	1.52	31.42	-	-	Peak
346.9	23.89	-22.11	46	38.3	14.93	1.95	31.29	-	-	Peak
498.1	19.01	-26.99	46	29.44	18.2	2.44	31.07	-	-	Peak
696.2	22.45	-23.55	46	29.49	20.85	2.93	30.82	-	-	Peak
5745	107.91	-	-	96.37	34.84	9.91	33.21	114	353	Peak
5745	97.57	-	-	86.03	34.84	9.91	33.21	114	353	Average
6910	60.07	-27.84	87.91	48.76	35.67	9.89	34.25	114	353	Peak

Test Mode :	Mode 11	**Temperature :**	24~25°C
Test Channel :	157	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
216.3	24.67	-21.33	46	44.46	10.27	1.4	31.46	-	-	Peak
264.09	30.44	-15.56	46	47.34	12.89	1.61	31.4	-	-	Peak
287.85	33.62	-12.38	46	50	13.27	1.68	31.33	-	-	Peak
310.5	36.51	-9.49	46	52.25	13.79	1.79	31.32	126	238	Peak
383.3	29.42	-16.58	46	42.49	16.05	2.11	31.23	-	-	Peak
430.9	26.98	-19.02	46	38.79	17.07	2.25	31.13	-	-	Peak
5785	109.12	-	-	97.57	34.88	9.9	33.23	108	324	Peak
5785	97.96	-	-	86.41	34.88	9.9	33.23	108	324	Average
6910	59.5	-29.62	89.12	48.19	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 11	**Temperature :**	24~25°C
Test Channel :	157	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.78	30.01	-9.99	40	45.34	15.57	0.57	31.47	106	53	Peak
51.33	24.29	-15.71	40	47.1	8.02	0.71	31.54	-	-	Peak
225.21	23.67	-22.33	46	42.78	10.89	1.45	31.45	-	-	Peak
310.5	26.52	-19.48	46	42.26	13.79	1.79	31.32	-	-	Peak
358.1	25.89	-20.11	46	39.85	15.27	2.04	31.27	-	-	Peak
564.6	21.17	-24.83	46	30.32	19.22	2.59	30.96	-	-	Peak
5785	109.5	-	-	97.98	34.89	9.89	33.26	101	353	Peak
5785	98.36	-	-	86.81	34.88	9.9	33.23	101	353	Average
6918	59.72	-29.78	89.5	48.41	35.67	9.9	34.26	100	0	Peak

Test Mode :	Mode 12	**Temperature :**	24~25°C
Test Channel :	165	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
216.3	24.26	-21.74	46	44.05	10.27	1.4	31.46	-	-	Peak
264.09	29.22	-16.78	46	46.12	12.89	1.61	31.4	-	-	Peak
287.85	34.54	-11.46	46	50.92	13.27	1.68	31.33	-	-	Peak
310.5	34.93	-11.07	46	50.67	13.79	1.79	31.32	147	189	Peak
360.2	34.92	-11.08	46	48.8	15.33	2.06	31.27	-	-	Peak
407.8	28.82	-17.18	46	41.13	16.69	2.17	31.17	-	-	Peak
5825	108.68	-	-	97.16	34.93	9.88	33.29	106	324	Peak
5825	97.73	-	-	86.21	34.93	9.88	33.29	106	324	Average
6908	58.75	-29.93	88.68	47.44	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 12	**Temperature :**	24~25°C
Test Channel :	165	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	29.81	-10.19	40	44.92	15.8	0.56	31.47	124	223	Peak
51.33	24.44	-15.56	40	47.25	8.02	0.71	31.54	-	-	Peak
261.66	28.37	-17.63	46	45.32	12.86	1.6	31.41	-	-	Peak
310.5	26.07	-19.93	46	41.81	13.79	1.79	31.32	-	-	Peak
358.1	25.74	-20.26	46	39.7	15.27	2.04	31.27	-	-	Peak
570.9	20.84	-25.16	46	29.86	19.32	2.61	30.95	-	-	Peak
5825	108.84	-	-	97.32	34.93	9.88	33.29	101	354	Peak
5825	97.96	-	-	86.44	34.93	9.88	33.29	101	354	Average
6916	61.27	-27.57	88.84	49.96	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 13	**Temperature :**	24~25°C
Test Channel :	149	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
216.3	24.95	-21.05	46	44.74	10.27	1.4	31.46	-	-	Peak
264.09	29.57	-16.43	46	46.47	12.89	1.61	31.4	-	-	Peak
287.85	30.36	-15.64	46	46.74	13.27	1.68	31.33	-	-	Peak
310.5	35.9	-10.1	46	51.64	13.79	1.79	31.32	125	248	Peak
358.1	33.4	-12.6	46	47.36	15.27	2.04	31.27	-	-	Peak
407.8	28.21	-17.79	46	40.52	16.69	2.17	31.17	-	-	Peak
5745	106.35	-	-	94.81	34.84	9.91	33.21	109	321	Peak
5745	96	-	-	84.46	34.84	9.91	33.21	109	321	Average
6910	59.51	-26.84	86.35	48.2	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 13	**Temperature :**	24~25°C
Test Channel :	149	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.33	-9.67	40	45.44	15.8	0.56	31.47	109	236	Peak
51.06	24.15	-15.85	40	46.96	8.02	0.71	31.54	-	-	Peak
233.58	24.32	-21.68	46	42.75	11.5	1.5	31.43	-	-	Peak
358.1	25.82	-20.18	46	39.78	15.27	2.04	31.27	-	-	Peak
537.3	19.71	-26.29	46	29.39	18.8	2.52	31	-	-	Peak
800.5	24.44	-21.56	46	29.51	22.47	3.14	30.68	-	-	Peak
5745	107.62	-	-	96.08	34.84	9.91	33.21	102	354	Peak
5745	96.48	-	-	84.94	34.84	9.91	33.21	102	354	Average
6916	60.76	-26.86	87.62	49.45	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 14	**Temperature :**	24~25°C
Test Channel :	157	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
216.3	28.1	-17.9	46	47.89	10.27	1.4	31.46	-	-	Peak
264.09	31.48	-14.52	46	48.38	12.89	1.61	31.4	-	-	Peak
287.85	30.16	-15.84	46	46.54	13.27	1.68	31.33	-	-	Peak
310.5	34.85	-11.15	46	50.59	13.79	1.79	31.32	156	237	Peak
358.1	33	-13	46	46.96	15.27	2.04	31.27	-	-	Peak
407.8	31.46	-14.54	46	43.77	16.69	2.17	31.17	-	-	Peak
5785	107.69	-	-	96.17	34.89	9.89	33.26	120	324	Peak
5785	96.6	-	-	85.05	34.88	9.9	33.23	120	324	Average
6908	57.63	-30.06	87.69	46.32	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 14	**Temperature :**	24~25°C
Test Channel :	157	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.86	-9.14	40	45.97	15.8	0.56	31.47	100	145	Peak
51.33	24.07	-15.93	40	46.88	8.02	0.71	31.54	-	-	Peak
226.02	25.05	-20.95	46	44.09	10.95	1.46	31.45	-	-	Peak
310.5	27.43	-18.57	46	43.17	13.79	1.79	31.32	-	-	Peak
358.1	24.83	-21.17	46	38.79	15.27	2.04	31.27	-	-	Peak
699.7	22.12	-23.88	46	29.12	20.88	2.94	30.82	-	-	Peak
5785	109.14	-	-	97.62	34.89	9.89	33.26	102	353	Peak
5785	98.43	-	-	86.88	34.88	9.9	33.23	102	353	Average
6908	58.81	-30.33	89.14	47.5	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 15	**Temperature :**	24~25°C
Test Channel :	165	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Horizontal
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	20.68	-19.32	40	35.79	15.8	0.56	31.47	-	-	Peak
240.06	27.67	-18.33	46	45.58	11.98	1.53	31.42	-	-	Peak
264.09	32.38	-13.62	46	49.28	12.89	1.61	31.4	-	-	Peak
310.5	34.92	-11.08	46	50.66	13.79	1.79	31.32	132	194	Peak
358.1	33.72	-12.28	46	47.68	15.27	2.04	31.27	-	-	Peak
383.3	30.77	-15.23	46	43.84	16.05	2.11	31.23	-	-	Peak
5825	107.5	-	-	95.98	34.93	9.88	33.29	108	322	Peak
5825	96.72	-	-	85.2	34.93	9.88	33.29	108	322	Average
6916	61.06	-26.44	87.5	49.75	35.67	9.89	34.25	100	0	Peak

Test Mode :	Mode 15	**Temperature :**	24~25°C
Test Channel :	165	**Relative Humidity :**	49~51%
Test Engineer :	Ivan Chiang and David Yang	**Polarization :**	Vertical
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.56	-9.44	40	45.67	15.8	0.56	31.47	121	147	Peak
207.66	26.32	-17.18	43.5	46.79	9.65	1.35	31.47	-	-	Peak
229.53	27.29	-18.71	46	46.02	11.23	1.48	31.44	-	-	Peak
358.1	26.07	-19.93	46	40.03	15.27	2.04	31.27	-	-	Peak
536.6	20.18	-25.82	46	29.88	18.78	2.52	31	-	-	Peak
803.3	24.39	-21.61	46	29.42	22.5	3.15	30.68	-	-	Peak
5825	107.87	-	-	96.35	34.93	9.88	33.29	102	354	Peak
5825	97.59	-	-	86.07	34.93	9.88	33.29	102	354	Average
6900	59.76	-28.11	87.87	48.46	35.66	9.89	34.25	100	0	Peak

3.8 Antenna Requirements

3.8.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Aug. 11, 2010	Aug.10, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP30	101329	9kHz~30GHz	May. 03, 2011	May. 02, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T400A	25696	N/A	Jun. 16, 2011	Jun. 15, 2012	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz~200MHz	Jun. 08, 2011	Jun. 07, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)
Signal Generator	Agilent	E8247C	MY43320596	250KHz-40GHz	N/A	N/A	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP140905 as below.